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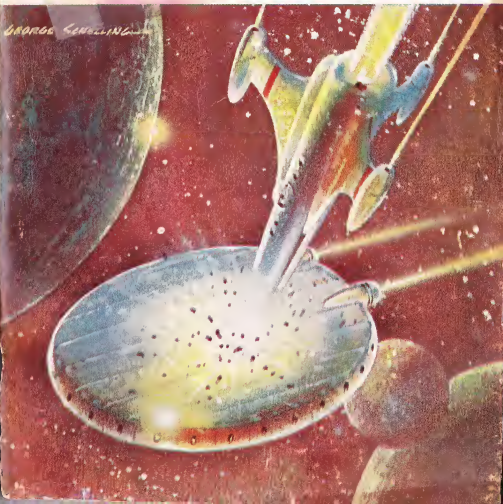
Galaxy

WASTED
ON THE YOUNG
by JOHN BRUNNER

WAR AGAINST THE YUKKS by KEITH LAUMER

A WOBBLE IN WOCKII FUTURES by GORDON R. DICKSON

COMMITTEE OF THE WHOLE by FRANK HERBERT



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1965

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MAGAZINE

ALL STORIES NEW

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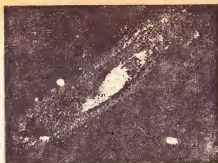
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HERE ARE THE STARS

With this issue we've added a section on non-fiction science books to our review department. But two recent books on astronomy seem to call for something more. They're beautiful books!

The first is a huge volume (and priced accordingly: \$22.95!) called *The Flammarion Book of Astronomy* (Simon & Schuster, Inc.). Its intent is simple: it covers everything.

Of course, the trouble with such a simple plan is that it is impossible. There is too much to cover. If you discuss quasars and the anomalous OH emissions from our galactic center, you just don't have room to deal with Phobos's peculiar orbit or the strange temperature readings on the portions of Jupiter's surface shadowed by its moons.

But astonishingly, *The Flammarion Book of Astronomy* comes pretty close at that. It takes you everywhere from our own earth and moon out to distant, receding galaxies, and back.

Primarily intended for French-speaking people, even the trans-

lation is a little Francophile, so that you will find much more attention paid to the observatory at Pic du Midi than to the one at Palomar. But it's a fine book. If you had only one book on astronomy—this would be the book to have!

Even more beautiful as to illustrations is *Beyond the Solar System* (Viking). The text is first-rate too, of course—since it is our own Willy Ley.

The illustrations are by Chesley Bonestell. Enough said! Just the captions will tell you what they are like: "Antares, a red supergiant, as viewed from a hypothetical inhabited planet." "Mira Ceti." And perhaps most wondrous of all: "The incredible system of Epsilon Aurigae"—a binary in which the main component is so huge and tenuous that it does not seem to glow at all.

If you resound to the beauty of That Big Universe Out There—these books will set you thrumming like a guitar string!

—THE EDITOR

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COMMITTEE OF THE WHOLE

by FRANK HERBERT

Illustrated by NODEL

*The information could never be
made public, no matter what—
yet it could not be kept quiet!*

I

With an increasing sense of unease, Alan Wallace studied his client as they neared the public hearing room on the second floor of the Old Senate Office Building. The guy was too relaxed.

"Bill, I'm worried about this,"

Wallace said. "You could damn well lose your grazing rights here in this room today."

They were almost into the gantlet of guards, reporters and TV cameramen before Wallace got his answer.

"Who the hell cares?" Custer asked.

Wallace, who prided himself

on being the Washington-type lawyer — above contamination by complaints and briefs, immune to all shock — found himself tongue-tied with surprise.

They were into the ruck then and Wallace had to pull on his bold face, smiling at the press, trying to soften the sharpness of that necessary phrase:

"No comment. Sorry."

"See us after the hearing if you have any questions, gentlemen," Custer said.

The man's voice was level and confident.

He has himself over-controlled, Wallace thought. Maybe he was just joking . . . a graveyard joke.

The marble-walled hearing room blazed with lights. Camera platforms had been raised above the seats at the rear. Some of the smaller UHF stations had their cameramen standing on the window ledges.

The subdued hubub of the place eased slightly, Wallace noted, then picked up tempo as William R. Custer — "The Baron of Oregon" they called him — entered with his attorney, passed the press tables and crossed to the seats reserved for them in the witness section.

Ahead and to their right, that one empty chair at the long table stood waiting with its aura of complete exposure.

"Who the hell cares?"

That wasn't a Custer-type joke, Wallace reminded himself. For all his cattle-baron pose, Custer held a doctorate in agriculture and degrees in philosophy, math and electronics. His western neighbors called him "The Brain".

It was no accident that the cattlemen had chosen him to represent them here.

Wallace glanced covertly at the man, studying him. The cowboy boots and string tie added to a neat dark business suit would have been affectation on most men. They merely accented Custer's good looks — the sunburned, windblown outdoorsman. He was a little darker of hair and skin than his father had been, still light enough to be called blonde, but not as ruddy and without the late father's drink-tumescent veins.

But then young Custer wasn't quite thirty.

Custer turned, met the attorney's eyes. He smiled.

"Those were good patent attorneys you recommended, Al," Custer said. He lifted his briefcase to his lap, patted it. "No mincing around or mealy-mouthed excuses. Already got this thing on the way." Again, he tapped the briefcase.

He brought that damn' light gadget here with him? Wallace

wondered. *Why?* He glanced at the briefcase. *Didn't know it was that small . . . but maybe he's just talking about the plans for it.*

"Let's keep our minds on this hearing," Wallace whispered. "This is the only thing that's important."

Into a sudden lull in the room's high noise level, the voice of someone in the press section carried across them: "greatest political show on earth."

"I brought this as an exhibit," Custer said. Again, he tapped the briefcase. It *did* bulge oddly.

Exhibit? Wallace asked himself.

It was the second time in ten minutes that Custer had shocked him. This was to be a hearing of a subcommittee of the Senate Interior and Insular Affairs Committee. The issue was Taylor grazing lands. What the devil could that . . . *gadget* have to do with the battle of words and laws to be fought here?

"You're supposed to talk over all strategy with your attorney," Wallace whispered. "What the devil do you . . ."

He broke off as the room fell suddenly silent.

Wallace looked up to see the subcommittee chairman, Senator Haycourt Tiborough, stride through the wide double doors followed by his coterie of in-

vestigators and attorneys. The senator was a tall man who had once been fat. He had dieted with such savage abruptness that his skin had never recovered. His jowls and the flesh on the back of his hands sagged. The top of his head was shiny bald and ringed by a three-quarter tonsure that had purposely been allowed to grow long and straggly so that it fanned back over his ears.

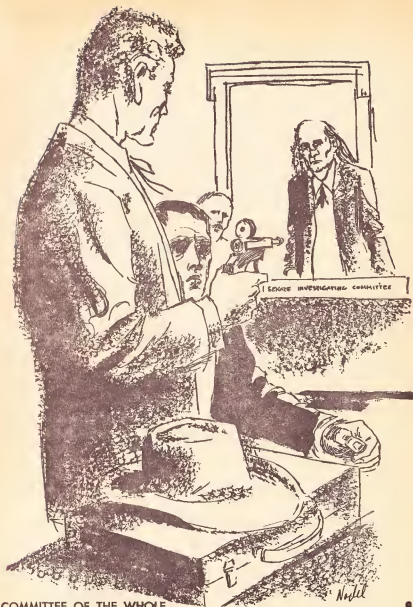
The senator was followed in close lock step by syndicated columnist Anthony Poxman who was speaking fiercely into Tiborough's left ear. TV cameras tracked the pair.

If Poxman's covering this one himself instead of sending a flunky, it's going to be bad, Wallace told himself.

Tiborough took his chair at the center of the committee table facing them, glanced left and right to assure himself the other members were present.

Senator Spealance was absent, Wallace noted, but he had party organization difficulties at home, and the Senior Senator from Oregon was, significantly, not present. Illness, it was reported.

A sudden attack of caution, that common Washington malady, no doubt. He knew where his campaign money came from . . . but he also knew where the votes were.



COMMITTEE OF THE WHOLE

They had a quorum, though.

Tiborough cleared his throat, said: "The committee will please come to order."

The senator's voice and manner gave Wallace a cold chill. *We were nuts trying to fight this one in the open*, he thought. *Why'd I let Custer and his friends talk me into this? You can't butt heads with a United States senator who's out to get you. The only way's to fight him on the inside.*

And now Custer suddenly turning screwball.

Exhibit!

"Gentlemen," said Tiborough, "I think we can . . . that is, today we can dispense with preliminaries . . . unless my colleagues . . . if any of them have objections."

Again, he glanced at the other senators — five of them. Wallace swept his gaze down the line behind that table — Plowers of Nebraska (a horse trader), Johnstone of Ohio (a parliamentarian — devious), Lane of South Carolina (a Republican in Democrat disguise), Emery of Minnesota (new and eager — dangerous because he lacked the old inhibitions) and Meltzer of New York (poker player, fine old family with traditions).

None of them had objections.

They've had a private meet-

ing — both sides of the aisle — and talked over a smooth steam-roller procedure, Wallace thought.

It was another ominous sign.

"This is a subcommittee of the United States Senate Committee on Interior and Insular Affairs," Tiborough said, his tone formal. "We are charged with obtaining expert opinion on proposed amendments to the Taylor Grazing Act of 1934. Today's hearing will begin with testimony. and . . . ah, questioning of a man whose family has been in the business of raising beef cattle in Oregon for three generations."

Tiborough smiled at the TV cameras.

The son-of-a-bitch is playing to the galleries, Wallace thought. He glanced at Custer. The cattleman sat relaxed against the back of his chair, eyes half lidded, staring at the senator.

"We call as our first witness today Mr. William R. Custer of Bend, Oregon," Tiborough said. "Will the clerk please swear in Mr. Custer."

Custer moved forward to the "hot seat", placed his briefcase on the table. Wallace pulled a chair up beside his client, noted how the cameras turned as the clerk stepped forward, put the Bible on the table and administered the oath.

Tiborough ruffled through

some papers in front of him, waited for full attention to return to him, said: "This subcommittee . . . we have before us a bill, this is a United States Senate Bill entitled SB-1024 of the current session, an act amending the Taylor Grazing Act of 1934 and, the intent is, as many have noted, that we would broaden the base of the advisory committees to the Act and include a wider public representation."

Custer was fiddling with the clasp of his briefcase.

How the hell could that light gadget be an exhibit here? Wallace asked himself. He glanced at the set of Custer's jaw, noted the nervous working of a muscle. It was the first sign of unease he'd seen in Custer. The sight failed to settle Wallace's own nerves.

"Ah, Mr. Custer," Tiborough said. "Do you—did you bring a preliminary statement? Your counsel . . ."

"I have a statement," Custer said. His big voice rumbled through the room, requiring instant attention and the shift of cameras that had been holding tardily on Tiborough, expecting an addition to the question.

Tiborough smiled, waited, then: "Your attorney—is your statement the one your counsel supplied the committee?"

"With some slight additions of my own," Custer said.

Wallace felt a sudden qualm. They were too willing to accept Custer's statement. He leaned close to his client's ear, whispered: "They know what your stand is. Skip the preliminaries."

Custer ignored him, said: "I intend to speak plainly and simply. I oppose the amendment. Broaden the base and wider public representation are phases of political double talk. The intent is to pack the committees, to put control of them into the hands of people who don't know the first thing about the cattle business and whose private intent is to destroy the Taylor Grazing Act itself."

"Plain, simple talk," Tiborough said. "This committee . . . we welcome such directness. Strong words. A majority of this committee . . . we have taken the position that the public range lands have been too long subjected to the tender mercies of the stockmen advisors, that the lands . . . stockmen have exploited them to their own advantage."

The gloves are off, Wallace thought. *I hope Custer knows what he's doing. He's sure as hell not accepting advice.*

Custer pulled a sheaf of papers from his briefcase and Wallace glimpsed shiny metal in the case before the flap was closed.

Christ! That looked like a gun or something!

Then Wallace recognized the papers—the brief he and his staff had labored over—and the preliminary statement. He noted with alarm the penciled markings and marginal notations. How could Custer have done that much to it in just twenty-four hours?

Again, Wallace whispered in Custer's ear: "Take it easy, Bill. The bastard's out for blood."

Custer nodded to show he had heard, glanced at the papers, looked up directly at Tiborough.

A hush settled on the room, broken only by the scraping of a chair somewhere in the rear, and the whirr of cameras.

II

"First, the nature of these lands we're talking about," Custer said. "In my state . . ." He cleared his throat, a mannerism that would have indicated anger in the old man, his father. There was no break in Custer's expression, though, and his voice remained level. ". . . in my state, these were mostly Indian lands. This nation took them by brute force, right of conquest. That's about the oldest right in the world, I guess. I don't want to argue with it at this point."

"Mr. Custer."

It was Nebraska's Senator Flowers, his amiable farmer's face set in a tight grin. "Mr. Custer, I hope . . ."

"Is this a point of order?" Tiborough asked.

"Mr. Chairman," Flowers said, "I merely wished to make sure we weren't going to bring up that old suggestion about giving these lands back to the Indians."

Laughter shot across the hearing room. Tiborough chuckled as he pounded his gavel for order.

"You may continue, Mr. Custer," Tiborough said.

Custer looked at Flowers, said: "No, Senator, I don't want to give these lands back to the Indians. When they had these lands, they only got about three hundred pounds of meat a year off eighty acres. We get five hundred pounds of the highest grade proteins—premium beef—from only ten acres."

"No one doubts the efficiency of your factory-like methods," Tiborough said. "You can . . . we know your methods wring the largest amount of meat from a minimum acreage."

Ugh! Wallace thought. *That was a low blow—implying Bill's overgrazing and destroying the land value.*

"My neighbors, the Warm Springs Indians, use the same methods I do," Custer said. "They are happy to adopt our

methods because we use the land while maintaining it and increasing its value. We don't permit the land to fall prey to natural disasters such as fire and erosion. We don't . . ."

"No doubt your methods are meticulously correct," Tiborough said. "But I fail to see where . . ."

"Has Mr. Custer finished his preliminary statement yet?" Senator Flowers cut in.

Wallace shot a startled look at the Nebraskan. That was help from an unexpected quarter.

"Thank you, Senator," Custer said. "I'm quite willing to adapt to the Chairman's methods and explain the meticulous correctness of my operation. Our lowliest cowhands are college men, highly paid. We travel ten times as many jeep miles as we do horse miles. Every outlying division of the ranch — every holding pen and grazing supervisor's cabin is linked to the central ranch by radio. We use the . . ."

"I concede that your methods must be the most modern in the world," Tiborough said. "It's not your methods as much as the results of those methods that are at issue here. We . . ."

He broke off at a disturbance by the door. An Army colonel was talking to the guard there. He wore Special Services fouragere — Pentagon.

Wallace noted with an odd feeling of disquiet that the man was armed — a .45 at the hip. The weapon was out of place on him, as though he had added it suddenly on an overpowering need . . . emergency.

More guards were coming up outside the door now — Marines and Army. They carried rifles.

The colonel said something sharp to the guard, turned away from him and entered the committee room. All the cameras were tracking him now. He ignored them, crossed swiftly to Tiborough, and spoke to him.

The senator shot a startled glance at Custer, accepted a sheaf of papers the colonel thrust at him. He forced his attention off Custer, studied the papers, leafing through them. Presently, he looked up, stared at Custer.

A hush fell over the room.

"I find myself at a loss, Mr. Custer," Tiborough said. "I have here a copy of a report . . . it's from the Special Services branch of the Army . . . through the Pentagon, you understand. It was just handed to me by, ah . . . the colonel here."

He looked up at the colonel who was standing, one hand resting lightly on the holstered .45. Tiborough looked back at Custer and it was obvious the senator was trying to marshall his thoughts.

"It is," Tiborough said, "that is . . . this report supposedly . . . and I have every confidence it is what it is represented to be . . . here in my hands . . . they say that . . . uh, within the last, uh, few days they have, uh, investigated a certain device . . . weapon they call it, that you are attempting to patent. They report . . ." He glanced at the papers, back to Custer, who was staring at him steadily. ". . . this, uh, weapon, is a thing that . . . it is extremely dangerous."

"It is," Custer said.

"I . . . ah, see." Tiborough cleared his throat, glanced up at the colonel who was staring fixedly at Custer. The senator brought his attention back to Custer.

"Do you in fact have such a weapon with you, Mr. Custer?" Tiborough asked.

"I have brought it as an exhibit, sir."

"Exhibit?"

"Yes, sir."

Wallace rubbed his lips, found them dry. He wet them with his tongue, wished for the water glass, but it was beyond Custer. *Christ! That stupid cowpuncher!* He wondered if he dared whisper to Custer. Would the senators and that Pentagon lackey interpret such an action as meaning he was part of Custer's crazy antics?

"Are you threatening this committee with your weapon, Mr. Custer?" Tiborough asked. "If you are, I may say special precautions have been taken . . . extra guards in this room and we . . . that is, we will not allow ourselves to worry too much about any action you may take, but ordinary precautions are in force."

Wallace could no longer sit quietly. He tugged Custer's sleeve, got an abrupt shake of the head. He leaned close, whispered: "We could ask for a recess, Bill. Maybe we . . ."

"Don't interrupt me," Custer said. He looked at Tiborough. "Senator, I would not threaten you or any other man. Threats in the way you mean them are a thing we no longer can indulge in."

"You . . . I believe you said this device is an exhibit," Tiborough said. He cast a worried frown at the report in his hands. "I fail . . . it does not appear germane."

Senator Plowers cleared his throat. "Mr. Chairman," he said.

"The chair recognizes the senator from Nebraska," Tiborough said, and the relief in his voice was obvious. He wanted time to think.

"Mr. Custer," Plowers said, "I have not seen the report, the

report my distinguished colleague alludes to; however, if I may . . . is it your wish to use this committee as some kind of publicity device?"

"By no means, Senator," Custer said. "I don't wish to profit by my presence here . . . not at all."

Tiborough had apparently come to a decision. He leaned back, whispered to the colonel, who nodded and returned to the outer hall.

"You strike me as an eminently reasonable man, Mr. Custer," Tiborough said. "If I may . . ."

"May I," Senator Flowers said. "May I, just permit me to conclude this one point. May we have the Special Services report in the record?"

"Certainly," Tiborough said. "But what I was about to suggest . . ."

"May I," Flowers said. "May I, would you permit me, please, Mr. Chairman, to make this point clear for the record?"

Tiborough scowled, but the heavy dignity of the Senate overcame his irritation. "Please continue, Senator. I had thought you were finished."

"I respect . . . there is no doubt in my mind of Mr. Custer's truthfulness," Flowers said. His face eased into a grin that made him look grandfatherly, a kindly elder statesman. "I would

like, therefore, to have him explain how this . . . ah, weapon, can be an exhibit in the matter before our committee."

Wallace glanced at Custer, saw the hard set to the man's jaw, realized the cattleman had gotten to Flowers somehow. This was a set piece.

Tiborough was glancing at the other senators, weighing the advisability of high-handed dismissal . . . perhaps a star chamber session. No . . . they were all too curious about Custer's device, his purpose here.

The thoughts were plain on the senator's face.

"Very well," Tiborough said. He nodded to Custer. "You may proceed, Mr. Custer."

"During last winter's slack season," Custer said, "two of my men and I worked on a project we've had in the works for three years—to develop a sustained-emission laser device."

Custer opened his briefcase, slid out a fat aluminum tube mounted on a pistol grip with a conventional appearing trigger.

"This is quite harmless," he said. "I didn't bring the power pack."

"That is . . . this is your weapon?" Tiborough asked.

"Calling this a weapon is misleading," Custer said. "The term

limits and oversimplifies. This is also a brush-cutter, a substitute for a logger's saw and axe, a diamond cutter, a milling machine . . . and a weapon. It is also a turning point in history."

"Come now, isn't that a bit pretentious?" Tiborough asked.

"We tend to think of history as something old and slow," Custer said. "But history is, as a matter of fact, extremely rapid and immediate. A President is assassinated, a bomb explodes over a city, a dam break, a revolutionary device is announced."

"Lasers have been known for quite a few years," Tiborough said. He looked at the papers the colonel had given him. "The principle dates from 1956 or thereabouts."

"I don't wish it to appear that I'm taking credit for inventing this device," Custer said. "Nor am I claiming sole credit for developing the sustained-emission laser. I was merely one of a team. But I do hold the device here in my hand, gentlemen."

"Exhibit, Mr. Custer," Plowers reminded him. "How is this an exhibit?"

"May I explain first how it works?" Custer asked. "That will make the rest of my statement much easier."

Tiborough looked at Plowers, back to Custer. "If you will

tie this all together, Mr. Custer," Tiborough said. "I want to . . . the bearing of this device on our — we are hearing a particular bill in this room."

"Certainly, Senator," Custer said. He looked at his device. "A ninety-volt radio battery drives this particular model. We have some that require less voltage, some that use more. We aimed for a construction with simple parts. Our crystals are common quartz. We shattered them by bringing them to a boil in water and then plunging them into ice water . . . repeatedly. We chose twenty pieces of very close to the same size — about one gram, slightly more than fifteen grains each."

Custer unscrewed the back of the tube, slid out a round length of plastic trailing lengths of red, green, brown, blue and yellow wire.

Wallace noted how the cameras of the TV men centered on the object in Custer's hands. Even the senators were leaning forward, staring.

We're gadget crazy people, Wallace thought.

"The crystals were dipped in thinned household cement and then into iron filings," Custer said. "We made a little jig out of a fly-tying vice and opened a passage in the filings at opposite ends of the crystals. We

then made some common celluloid — nitrocellulose, acetic acid, gelatin and alcohol — all very common products, and formed it in a length of garden hose just long enough to take the crystals end to end. The crystals were inserted in the hose, the celluloid poured over them and the whole thing was seated in a magnetic waveguide while the celluloid was cooling. This centered and aligned the crystals. The waveguide was constructed from wire salvaged from an old TV set and built following the directions in the Radio Amateur's Handbook."

Custer re-inserted the length of plastic into the tube, adjusted the wires. There was an unearthly silence in the room with only the cameras whirring. It was as though everyone were holding his breath.

"A laser requires a resonant cavity, but that's complicated," Custer said. "Instead, we wound two layers of fine copper wire around our tube, immersed it in the celluloid solution to coat it and then filed one end flat. This end took a piece of mirror cut to fit. We then pressed a number eight embroidery needle at right angles into the mirror end of the tube until it touched the side of the number one crystal."

Custer cleared his throat.

Two of the senators leaned



back. Flowers coughed. Tiborough glanced at the banks of TV cameras and there was a questioning look in his eyes.

“We then determined the master frequency of our crystal series,” Custer said. “We used a test signal and oscilloscope, but any radio amateur could do it without the oscilloscope. We constructed an oscillator of that master frequency, attached it at the needle and a bare spot scraped in the opposite edge of the waveguide.”

“And this . . . ah . . . worked?” Tiborough asked.

“No.” Custer shook his head. “When we fed power through a voltage multiplier into the system we produced an estimated four hundred joules emission and melted half the tube. So we started all over again.”

“You are going to tie this in?” Tiborough asked. He frowned at the papers in his hands, glanced toward the door where the colonel had gone.

“I am, sir, believe me,” Custer said.

“Very well, then,” Tiborough said.

“So we started all over,” Custer said. “But for the second celluloid dip we added bismuth — a saturate solution, actually. It stayed gummy and we had to paint over it with a sealing coat

of the straight celluloid. We then coupled this bismuth layer through a pulse circuit so that it was bathed in a counter wave — 180 degrees out of phase with the master frequency. We had, in effect, immersed the unit in a thermoelectric cooler that exactly countered the heat production. A thin beam issued from the unmirrored end when we powered it. We have yet to find something that thin beam cannot cut.”

“Diamonds?” Tiborough asked.

“Powered by less than two hundred volts, this device could cut our planet in half like a ripe tomato,” Custer said. “One man could destroy an aerial armada with it, knock down IC-BMs before they touched atmosphere, sink a fleet, pulverize a city. I’m afraid, sir, that I haven’t mentally catalogued all the violent implications of this device. The mind tends to boggle at the enormous power focused in . . .”

“Shut down those TV cameras!”

It was Tiborough shouting, leaping to his feet and making a sweeping gesture to include the banks of cameras. The abrupt violence of his voice and gesture fell on the room like an explosion. “Guards!” he called. “You there at the door. Cordon off that door and don’t let any-

one out who heard this fool!" He whirled back to face Custer. "You irresponsible idiot!"

"I'm afraid, Senator," Custer said, "that you're locking the barn door many weeks too late."

For a long minute of silence Tiborough glared at Custer. Then: "You did this deliberately, eh?"

III

"Senator, if I'd waited any longer, there might have been no hope for us at all."

Tiborough sat back into his chair, still keeping his attention fastened on Custer. Flowers and Johnston on his right had their heads close together whispering fiercely. The other senators were dividing their attention between Custer and Tiborough, their eyes wide and with no attempt to conceal their astonishment.

Wallace, growing conscious of the implications in what Custer had said, tried to wet his lips with his tongue. *Christ!* he thought. *This stupid cowpoke has sold us all down the river!*

Tiborough signaled an aide, spoke briefly with him, beckoned the colonel from the door. There was a buzzing of excited conversation in the room. Several of the press and TV crew were huddled near the windows on Custer's left, arguing. One of

their number — a florid-faced man with gray hair and horn-rimmed glasses, started across the room toward Tiborough, was stopped by a committee aide. They began a low-voiced argument with violent gestures.

A loud curse sounded from the door. Poxman, the syndicated columnist, was trying to push past the guards there.

"Poxman!" Tiborough called. The columnist turned. "My orders are that no one leaves," Tiborough said. "You are not an exception." He turned back to face Custer.

The room had fallen into a semblance of quiet, although there still were pockets of muttering and there was the sound of running feet and a hurrying about in the hall outside.

"Two channels went out of here live," Tiborough said. "Nothing much we can do about them, although we will trace down as many of their viewers as we can. Every bit of film in this room and every sound tape will be confiscated, however." His voice rose as protests sounded from the press section. "Our national security is at stake. The President has been notified. Such measures as are necessary will be taken."

The colonel came hurrying into the room, crossed to Tiborough, quietly said something.

"You should've warned me!" Tiborough snapped. "I had no idea that . . ."

The colonel interrupted with a whispered comment.

"These papers . . . your damned report is *not* clear!" Tiborough said. He looked around at Custer. "I see you're smiling, Mr. Custer. I don't think you'll find much to smile about before long."

"Senator, this is not a happy smile," Custer said. "But I told myself several days ago you'd fail to see the implications of this thing." He tapped the pistol-shaped device he had rested on the table. "I told myself you'd fall back into the old, useless pattern."

"Is that what you told yourself, really?" Tiborough said.

Wallace, hearing the venom in the senator's voice, moved his chair a few inches farther away from Custer.

Tiborough looked at the laser projector. "Is that thing really disarmed?"

"Yes, sir."

"If I order one of my men to take it from you, you will not resist?"

"Which of your men will you trust with it, Senator?" Custer asked.

In the long silence that fol-

lowed, someone in the press section emitted a nervous guffaw.

"Virtually every man on my ranch has one of these things," Custer said. "We fell trees with them, cut firewood, make fence posts. Every letter written to me as a result of my patent application has been answered candidly. More than a thousand sets of schematics and instructions on how to build this device have been sent out to varied places in the world."

"You vicious traitor!" Tiborough rasped.

"You're certainly entitled to your opinion, Senator," Custer said. "But I warn you I've had time for considerably more concentrated and considerably more painful thought than you've applied to this problem. In my estimation, I had no choice. Every week I waited to make this thing public, every day, every minute, merely raised the odds that humanity would be destroyed by . . ."

"You said this thing applied to the hearings on the grazing act," Flowers protested, and there was a plaintive note of complaint in his voice.

"Senator, I told you the truth," Custer said. "There's no real reason to change the act, now. We intend to go on operating under it—with the agreement of our neighbors and others con-

cerned. People are still going to need food."

Tiborough glared at him. "You're saying we can't force you to . . ." He broke off at a disturbance in the doorway. A rope barrier had been stretched there and a line of Marines stood with their backs to it, facing the hall. A mob of people was trying to press through. Press cards were being waved.

"Colonel, I told you to clear that hall!" Tiborough barked.

The colonel ran to the barrier. "Use your bayonets if you have to!" he shouted.

The disturbance subsided at the sound of his voice. More uniformed men could be seen moving in along the barrier. Presently, the noise receded.

Tiborough turned back to Custer. "You make Benedict Arnold look like the greatest friend the United States ever had," he said.

"Cursing me isn't going to help you," Custer said. "You are going to have to live with this thing; so you'd better try understanding it."

"That appears to be simple," Tiborough said. "All I have to do is send twenty-five cents to the Patent office for the schematics and then write you a letter."

"The world already was head-

ed toward suicide," Custer said. "Only fools failed to realize . . ."

"So you decided to give us a little push," Tiborough said.

"H. G. Wells warned us," Custer said. "That's how far back it goes, but nobody listened. 'Human history becomes more and more a race between education and catastrophe,' Wells said. But those were just words. Many scientists have remarked the growth curve on the amount of raw energy becoming available to humans — and the diminishing curve on the number of persons required to use that energy. For a long time now, more and more violent power was being made available to fewer and fewer people. It was only a matter of time until total destruction was put into the hands of single individuals."

"And you didn't think you could take your government into your confidence."

"The government already was committed to a political course diametrically opposite the one this device requires," Custer said. "Virtually every man in the government has a vested interest in not reversing that course."

"So you set yourself above the government?"

"I'm probably wasting my time," Custer said, "but I'll try to explain it. Virtually every

government in the world is dedicated to manipulating something called the 'mass man'. That's how governments have stayed in power. But there is no such man. When you elevate the non-existent 'mass man' you degrade the individual. And obviously it was only a matter of time until all of us were at the mercy of the individual holding power."

"You talk like a commie!"

"They'll say I'm a goddamn capitalist pawn," Custer said. "Let me ask you, Senator, to visualize a poor radio technician in a South American country. Brazil, for example. He lives a hand-to-mouth existence, ground down by an overbearing, unimaginative, essentially uncouth ruling oligarchy. What is he going to do when this device comes into his hands?"

"**M**urder, robbery and anarchy."

"You could be right," Custer said. "But we might reach an understanding out of ultimate necessity — that each of us must cooperate in maintaining the dignity of all."

Tiborough stared at him, began to speak musingly: "We'll have to control the essential materials for constructing this thing . . . and there may be trouble for awhile, but . . ."

"You're a vicious fool."

In the cold silence that followed, Custer said: "It was too late to try that ten years ago. I'm telling you this thing can be patchworked out of a wide variety of materials that are already scattered over the earth. It can be made in basements and mud huts, in palaces and shacks. The key item is the crystals, but other crystals will work, too. That's obvious. A patient man can grow crystals . . . and this world is full of patient men."

"I'm going to place you under arrest," Tiborough said. "You have outraged every rule—"

"You're living in a dream world," Custer said. "I refuse to threaten you, but I'll defend myself from any attempt to oppress or degrade me. If I cannot defend myself, my friends will defend me. No man who understands what this device means will permit his dignity to be taken from him."

Custer allowed a moment for his words to sink in, then: "And don't twist those words to imply a threat. Refusal to threaten a fellow human is an absolute requirement in the day that has just dawned on us."

"You haven't changed a thing!" Tiborough raged. "If one man is powerful with that thing, a hundred are . . ."

"All previous insults aside," Custer said, "I think you are a

highly intelligent man, Senator. I ask you to think long and hard about this device. Use of power is no longer the deciding factor because one man is as powerful as a million. Restraint — self-restraint is now the key to survival. Each of us is at the mercy of his neighbor's good will. Each of us, Senator—the man in the palace and the man in the shack. We'd better do all we can to increase that good will — not attempting to buy it, but simply recognizing that individual dignity is the one inalienable right of . . ."

"Don't you preach at me, you commie traitor!" Tiborough rasped. "You're a living example of . . ."

"Senator!"

It was one of the TV cameramen in the left rear of the room.

"Let's stop insulting Mr. Custer and hear him out," the cameraman said.

"Get that man's name," Tiborough told an aide. "If he . . ."

"I'm an expert electronic technician, Senator," the man said. "You can't threaten me now."

Custer smiled, turned to face Tiborough.

"The revolution begins," Custer said. He waved a hand as the senator started to whirl away. "Sit down, Senator."

Wallace, watching the senator

obey, saw how the balance of control had changed in this room.

"Ideas are in the wind," Custer said. "There comes a time for a thing to develop. It comes into being. The spinning jenny came into being because that was its time. It was based on countless ideas that had preceded it."

"And this is the age of the laser?" Tiborough asked.

"It was bound to come," Custer said. "But the number of people in the world who're filled with hate and frustration and violence has been growing with terrible speed. You add to that the enormous danger that this might fall into the hands of just one group or nation or . . ." Custer shrugged. "This is too much power to be confined to one man or group with the hope they'll administer wisely. I didn't dare delay. That's why I spread this thing now and announced it as broadly as I could."

Tiborough leaned back in his chair, his hands in his lap. His face was pale and beads of perspiration stood out on his forehead.

"We won't make it."

"I hope you're wrong, Senator," Custer said. "But the only thing I know for sure is that we'd have had less chance of making it tomorrow than we have today."

— FRANK HERBERT

Wrong-Way Street

by LARRY NIVEN

*What was the ancient alien
ship on Earth's Moon? What
had happened to its people?*

Mike Capoferri turned out to be at one time in his life the loneliest man on the Moon. But it was not his first venture into aloneness. He had felt it before, almost twenty years before, when he was twelve and his eight-year-old brother died.

Young Tony had been riding a Flexy, a kind of bobsled on wheels, down the hill road above Venice Boulevard. At the bottom of the hill he had turned hard right onto Venice. The Flexy had flipped over on its back, and its blunt rubber handle had poked hard into Tony's stomach.

One of the first things the doctor did was to take Tony's

blood pressure. It was low, which meant shock. It started to fall almost as soon as the blood pressure cuff was removed, but the doctor didn't know that until it was too late. Tony's spleen was ruptured.

Mike had loved his younger brother. He sat in his room most of the time, unable to get used to his loss, and not really trying. After four weeks of it his father neglected his own grief long enough to take Mike to a child psychologist.

Mike was a recent but ardent science-fiction fan. "I want to change it, Doctor Stuart," he said earnestly. "I want to go back to

four weeks ago and take away Tony's Flexy." He meant it, of course.

Doctor Stuart had worked hard to get Mike to say those words. If he was thinking in terms of sibling rivalries and guilt feelings, it didn't show. "You can't do that, Mike. Time is a one-way street with no parking spaces. You just have to keep going."

"Until you have an accident," Mike said bitterly.

Doctor Stuart nodded. "Or run out of gas," he added, because he himself was old enough for the analogy to apply. They talked for almost three hours, with Mike doing most of the talking. Afterwards Mike gradually stopped mourning.

When Mike Capoferri graduated from high school he had become intensely interested in space travel. His first year at Cal Tech was the year Walnikov landed on Mars. Mike was determined to follow.

In a way he traveled further than Walnikov. He never got to Mars, but he did make it to the Moon. And unlike Mars, the Moon once had intelligent visitors.

Mike was one of many. Thirty men and women had come to the alien base, determined to probe all its secrets. By this time

Mike was thirty-one years old and held doctorates in physics, mathematics and philosophy. He was tall, dark, not too homely, a little too earnest. He got over that at the base, where the only defense against strangeness was a sense of humor.

Besides the base, the aliens had thoughtfully provided one spaceship. It rested on its side near the base, a fat cylinder with conical ends and asymmetrical bulges in unexpected places. Mike began going through the ship before he ever entered the base, and he kept at it through the years. This wasn't unusual. The ship was thought to be the real treasure, for its star charts showed (in hard-to-read notations in ultraviolet ink) that it had cruised between widely separated stars. It may have had a faster-than-light drive.

The base personnel lived in the base itself, with their own air regenerating system and their own airlock built into the open alien airlock. There was plenty of room for them. The aliens had averaged ten feet tall, and there were things which must have been bunks for forty-eight of them.

Still, the base took getting used to. The alien engineers had put steps and ledges in the floor wherever the ground beneath wasn't exactly level. Newcomers

learned to walk with bowed heads to avoid stubbed toes. They learned not to sit on the 'bunks,' which looked like pieces of free-form sculpture, felt like foam rubber with a metal core, and changed shape without warning. They were told not to touch mosaic designs which had been marked with paint, for the design might hide a control surface of some kind.

It was four years since Mike had landed on the Moon. In that time the human tenants had made a great deal of progress.

An emergency repair kit from the ship had yielded a method of creating artificial crystals of almost any shape from almost any solid, by building them up atom by atom. Already ships had lifted on rocket motors built from large diamonds.

A box which held perfectly preserved sections from some non-terrestrial animals, possibly used as food, had given them a field which would interrupt any chemical process. The applications were numerous and varied. A short-range death ray. A beam to fight forest fires. A new method of inducing suspended animation, very useful in surgery.

A sculpting implement, used by the aliens as a means of recreation (the base was infested with the statues they had left

behind), had become a disintegrator. Turning it on had been heartbreakingly difficult. Mike had solved that problem in his second year, but had never been able to turn it off. The alien rec room had to be kept in vacuo, with a separate airlock, because air disappeared into the little ball of nothing at the end of the sculpting tool.

Enough progress had been made on the alien number system that it was possible to do calculus with it. The money system, however, remained a complete mystery.

Aside from the crystal maker and the airlock controls, the ship was as great and as fascinating an enigma as ever. The rows of 'bunks' near the back — suppose a bunk changed shape and dumped its occupant during a 5G maneuver? The controls, in plain sight on a common-sense control board in the bunk section — what did it take to make them work? And what was the purpose of the dull red tetrahedron, seven feet on a side, which was set in the rear wall of the passenger section?

Mike was taking a coffee break with Terry Holmes, a pretty, cheerful, blonde little Doctor of Languages, the day he first said, "I think I know what the central pyramid is for."

Many people had said that, of

course, but Mike was not addicted to wild guesses. "What is it?" Terry asked eagerly.

"It's a time machine," he said.

Terry got mad and left the table. The Halloween before Mike had dressed to imitate an alien statue and had frighteningly 'come to life' before her horrified eyes. Since then she had been sensitive about his jokes.

"No, really," he told her during the afternoon coffee break. "The idea makes a great deal of sense. We can be sure that the aliens had suspended animation, can't we?"

"Sure." The reaction damping field was perfect for that purpose.

"Right. So if they had time travel to go with it, it adds up to an FTL drive. They can sleep through a hundred-year journey and then move back a hundred years."

"You're only guessing," Terry told him. "If the pyramid is an interstellar drive they didn't need time travel. If they had suspended animation they could have spent generations on one trip. We'll have to do that ourselves, probably."

"Sure, but the idea of a time-travel device in the center of a spaceship is at least logical. I've been working on the thing for quite a while, and I think that's what it is. I've made it produce

a weak gravitational field, so I know it can distort four-space."

"Then it's for artificial gravity." She laughed as his face fell. "Mike, I dub thee world's champion rationalizer. And now I've got to get back to work."

For a month nothing important happened. Carlos found a way to turn on the alien television set and got three-dimensional, technicolor static. Terry made some progress with the alien money; she had a tentative ordering of coins into either ascending or descending value, if in fact they were coins.

Then one day the ship disappeared.

Mike was trying something new. He had set up a magnetic field around the control board and pushed one of the pyramid knobs. There were two of these, the same shape and color as the massive machine behind him. Now he put a block of glass between the poles of his generator and cut the current. The knob lit with an almost invisible blue glow. Suddenly everything was in free fall.

"Eureka," Mike said absently, meaning: at last I've gotten some action out of the beast. When he turned his head he saw that the big red tetrahedron was base forward. He'd heard no sound of motion.

A taint purple line grew across the top of the board.

There were too many unknowns crawling into his experiment. Mike looked back so that he could see the big pyramid turn around, and switched his generator back on. Results came instantly.

Mike sat up trying to rub the pain out of his eyes. It was several seconds before he could open them.

The pyramid was apex-forward again. Mike got up and pulled out the pyramid knob, waited a moment for luck, then turned off the field generator. At last he sat down perspiring on an alien 'bunk'. What a sight that had been! He couldn't even remember it without his eyes hurting.

Mike's bunk inconsiderately dropped him on the floor. He promptly got up and made for the airlock, feeling a crying need for coffee, Terry Holmes, conversation and familiar things. The strangeness had suddenly become too much to take.

His momentary fear of the ship was gone by the time he left the airlock. What had started it, anyway? Merely the fact that he'd gotten things to working at last. Now they could make some real progress.

He moved toward the base in easy four-foot leaping strides which splashed waves of dust

when he landed. He was looking straight at the base airlock, but he was preoccupied by the thought of coffee and the familiar, instantly suppressed wish for a cigarette. He was half-way there before he noticed . . .

The base airlock was closed. The *alien* airlock!

Mike stopped short, staring. At first he was only bewildered, not horrified. How could the doors have closed? The bulk of the U N airlock would have stopped them. Or was the alien metal strong enough to —

Mike made a strangling noise. The human airlock must have been crushed flat!

He ran.

It had taken the base team months to open those doors. Although Mike had arrived a year later, he knew how they had done it. But why had they closed it? Had some fool been meddling with the controls?

With alien designing, practically anything could be a control. The aliens had cleverly hidden their knobs, buttons, and pressure sensitive surfaces in esthetically pleasing designs. The doors could have been closed by somebody accidentally leaning against a wall. Nobody had ever bothered to find out how to open them from the inside.

Mike began picking pressure

points out of the mosaic on the outer door. He stopped to wonder if the base held air, then decided that it didn't matter. Anyone still alive would be wearing a spacesuit under emergency regulations.

He was taking a breather when he noticed that the UN ship was gone.

Had they started to evacuate the base? No, the ship only held four people and cargo. They must have gone for help.

The lock had been designed for use by two ten-footers with fourteen-foot branched tentacles. Mike needed forty minutes and a great deal of ingenuity, but finally the lock swung open.

There was no wreckage in the lock.

"Dust," Mike told himself. There was almost no moondust on the worn path between the ship and the base. Yet dust had spurted beneath his boots . . . and there was no Earth-built ship, and the station was locked.

"Eureka," he said softly. "They haven't found the base yet. I've traveled in time."

Yet there were other possibilities. Mike began seeking them out even as he was going to work on the inner door. Maybe he had gone forward in time, to when the base had been restored as a museum. Or, worse yet, to some time after the return of the legi-

timate owners. (That had once been a favorite joke around the base: 'Hey, look, they're coming back!') He might even be in another time track, one in which the base had never been abandoned. After all, he really didn't know much about the machine he'd been running.

One look through a telescope would have told all. He could see the Earth from where he was standing, huge and full, but of course, he could not make out the shapes of the continents.

He kept working.

He was rigidly tensed as the doors folded back. Had the station been abandoned yet? Was his the honor, God help him, of meeting the first inhuman intelligence? But nobody came to meet him.

His air pressure dial read 22.4 pounds/square inch. This must be alien air.

He walked through the base, slowly and cautiously; after four and a half years he was used to watching where he stepped. The base was like a haunted house. There was an air of strangeness here that he had never known before, not even when he had first come. Not Commander Link Day of UN Flight Four, but Mike Capoferri, was the first man to set foot in this place.

Could he get back? Sure he could. The other button must be the one that controlled flight into the future.

But even then, he might not be able to tell anyone.

Hey, he told himself proudly, I'm a time traveler! Wait here, he answered solicitously, I'll call the medic. No, he protested, I can prove it. Get in the ship and I'll show you. But that could go wrong in a dozen ways. He'd want to know more about what he was doing before he tried this again.

Kilroy was here, he thought.

If he left marks of his visit, they would still be here when he returned to his own time. He could scratch his initials — hmm.

He turned right. When he reached the rec room he went to one of the sculpting machines and began to take it apart.

The tool itself looked like a big, fat mechanical pencil. It was set in a brace which could be moved to any part of the work. The brace allowed the tool to move freely under pressure and held it steady otherwise. The pointed business end of the tool generated a sphere of emptiness into which matter vanished without trace.

Removing the tool from the brace was almost easy. Turning it on took just under an hour. Once Mike almost gave up the

idea, but he kept at it, for he had nothing else which would mar any of the indestructible materials used to build the base.

He held the device like a pencil, but more carefully. His first thought had been to put a portrait of Commander Link Day on the statue of an alien female in the bunk room. He'd changed his mind. It would be dangerous and stupid to change his own past. He had to do something which would not be discovered before he arrived at the base, in 1985.

The inner side of the outer door would be a good place to hide a carving, because nobody had ever seen it. It folded against the airlock wall when the lock was open.

A wind blew toward his hand as he walked. There must be a way to shut air out of the disintegrator, but he hadn't the time to find it. He couldn't remember whether the team had found air in the base. If they had, he was changing the past right now.

What should he write? 'The world is my ash tray', he decided, and slammed his toe into a ledge. He threw both hands out to break his fall, and changed his mind too late. Horrified, he watched the sculpting pencil vanish into the floor. It left a neat cylindrical hole.

Well, Mike thought furiously,

that takes care of that. I've made my mark.

He plugged the hole with cement from the meteor repair kit on his suit belt. There was now a machine missing from the base, one that had been there in his own time, but he couldn't do anything about that. He did manage to close the airlock doors as he left.

The breathtaking beauty of the full Earth stopped him outside the ship. He gazed at the magnificent bluish-white disk, trying to decide what made it seem different. Was there more cloud area? Whatever the reason, the sight was more impressive than ever.

Then it came to him. The Earth was bigger! It was probably twice as large as he had ever seen it. Of course, there was nothing nearby to compare it to; which was why he hadn't noticed before.

Mike was smiling as he entered the lock. The Moon has been moving outward from the Earth since creation, picking up energy from the slowing of the Earth's rotation. He must be a long way into the past. About three billion years . . .

He pushed through the inner door and stood a moment, looking down the three broken rows — one along the floor of the ship,

the others down the sides — of amethyst portholes. It would have been nice to be able to see out, but the glassy material was transparent only to a wide range of ultraviolet light.

He went through the motions at the control panel. Right pyramid knob in — and it had better be the right move. Generator on. Glass block between the poles. Generator off.

He floated.

Suddenly, remembering the sight of the central pyramid 'turning', Mike was glad that he could not see the ship traveling through time. Obviously the aliens could stand the sight — but they could also look at the central pyramid, for they had done nothing to protect themselves from it.

A green line crept across the board, covering and wiping out the faint purple line. Mike let it grow until the purple line was gone, then slipped on his generator.

Wrong, wrong! He was still in free fall!

In hideous indecision he watched the board, waiting for it to tell him — it didn't matter what, for the board was quiet and dark. In the end he left the knob in and the generator on and pushed himself aft. He had to get a look outside.

He braced himself in the airlock, suspiciously examining the brilliant sky for any sign that he was still traveling in time. There was nothing. Mike turned on his shoes and gingerly stepped out onto the hull. When he looked down, the Moon wasn't there.

A misty white planet floated nearby. It was a heavy atmosphere type, as uniform and featureless as a piece of bedsheet. It was Venus, if he was still in the solar system. Otherwise — heavy atmospheres are the norm in space.

It seemed obvious now that he'd guessed wrong. The knob on the left must control time travel; the one on the right, space travel. It was a chance he he'd have to take.

Mike watched the white disk slowly setting toward one horizon of the ship. As the last thing he might see in life, it left a lot to be desired. Still, blank as it was, he could tell quite a bit about it. It couldn't be very large, for instance. If it were a giant, its atmosphere would be banded. It must be bigger than Mars to have an opaque atmosphere, but, unless an oversized moon had stripped away most of the air, it couldn't be much larger than Earth.

When he saw its star he could try guessing its surface temperature.

He sat down on the hull. There were two days' worth of oxygen in the ship, and little chance that it would get him home. He was lost in both space and time. He didn't know how to go into the future; if there was a way, he could expect to spend months looking for it. It was time to face death.

Besides, he'd been running for hours, torn by conflicting emotions, through a world whose laws were more black magic than physics. It was high time for a coffee break.

Mike licked dry lips. That last, lost cup of coffee would have tasted wonderful. A cigarette would have torn his throat out after four and a half years, but it would have felt natural and smelled good smoldering between his fingers.

He'd left precious little legacy for the others at the base; a spare spacesuit that couldn't fit anyone else, three sets of lounging overalls, and a few interesting discoveries. He'd taken the spaceship; they'd cuss him out good for that . . .

Or had he ever lived at all? He had died before he was born. Perhaps there would be no Mike Capoferri, ever.

But UN Flight Four would find his anonymous traces when they opened the base. Footprints in moondust. A sculpting tool

missing from the rec room. A hole in the floor; his cement was sure to disintegrate in three billion years. Would they ever guess how deep it was? The damn thing must have fallen all the way to the center of the Moon.

Searing light stabbed his eyes. Mike groped blindly for his filter switch, and found it. The light became bearable.

A sun was rising over the hull. It looked very much like the Sun as seen from the Moon; but that only meant that it wasn't. Seen from a Venus orbit, the Sun would have been much larger. He was in another solar system.

Could the ship have come home by itself? Was that the home world of the base race? No, of course not. The aliens had had a water metabolism, and there would be no water down there. That world, in an Earth-like orbit around a type G yellow dwarf, must have a surface temperature of around five hundred degrees Fahrenheit.

Mr. Parkman in Physics 1B had told him that "The Earth's atmosphere goes 'way past the Moon," he told the class one day. He seemed surprised by their laughter. It was his highly successful way of holding their attention. "No, it's true. Of course, it gets pretty thin. The idea is

that the Earth's atmosphere ends where its density drops to the density of surrounding space. In the same way, the Sun's atmosphere goes out beyond Mars.

"Well, the air is thin enough to behave like separate particles at that distance. So the Moon is constantly whipping through this cloud of gas molecules—he made frantic motions with his hands—"and it pulls some of them up to escape velocity every time it goes by. Naturally they're never heard from again. The air keeps replacing itself, more or less, by volcanic action.

"Now, most planets don't have giant moons, so they grow tremendous air envelopes. Like Venus. Here's where the greenhouse effect comes in . . ."

Mike snapped back to the present because of something small and dark and spinning. With the light filter over his eyes he couldn't see more. He looked away. Something was worrying at the bottom of his mind.

Again his mind's eye watched the sculpting tool fall into a tunnel of its own making. He saw it lying at the center of the Moon, perhaps carving out a little pit for itself . . .

Wrong. There would be millions of tons of pressure to flatten any cavity into oblivion . . .

Any cavity but one. Now the picture was right.

The sun had dropped below the hull, though part of the corona still showed. Mike raised his filter and searched for the spinning blob. He knew what it was, now.

At first glance it looked like a walnut shell; but not quite, for the shape was wrong and the convolutions were too deep. What it really resembled was a deflated beach ball which somebody has crushed between his hands.

The moon had had a long time to push itself through a sphere an inch and a half in diameter. Probably it had not taken more than a few millenia. Afterwards there had been nothing but this crumpled ball of waste, too light and rigid for gravity to compress it further. For three billion years the Earth had been moonless.

"... Six to eight hundred degrees!" Mr. Parkman waited a moment while the scribblers caught up. "They knew about the greenhouse effect, but they hadn't dreamed that it would apply to little Venus. You could melt lead in such a greenhouse!

"The point is, the astronomers were using Earth as a norm. It isn't. The Earth-Moon system is an astronomical freak. A normal planet in Earth's orbit would have an opaque, very thick atmosphere, so thick that wind and

light and temperature changes would never reach the surface. An eternal searing black calm."

Mike turned and crawled into the airlock, moving as fast as he dared in free fall. He could have gone mad waiting for the inner door to open, but he didn't dare. The knowledge of certain death had been better than this aching sense of responsibility.

The door opened and he jumped toward the control board. Already he was planning. He had to go back some time before his first arrival. Then — remove the sculpting tools from the rec room, or somehow scramble the controls of the base airlock, or leave a message for 'himself' on the outer door. Anything to restore the past.

The glass block had not floated out of place. All he had to do was cut the magnetic field. He watched the purple line until he was sure that it was longer than it had been before. When he flipped the generator back on his feet thumped satisfyingly against the floor. Half the battle.

Ghosts from his childhood whispered to him while he waited for the outer door to open. Parkman was there, but Mike refused to listen to him. He remembered Tony; which was unfair, because he'd only robbed Tony of eight years.

The door opened on the Moon. Mike bounded toward the base.

. . . Or had he? He really should have known better than to loan Tony his Flexy. His Flexy, because Tony's had a broken wheel. Had he told Doctor Stuart that? No.

"Time is a one-way street," said Doctor Stuart, sympathetically but firmly. He was wrong, dead wrong.

Mike stood before the base airlock wriggling his fingers like a clarinet player. How far back had he come this time? He turned left to see the size of the Earth.

It wasn't there.

But it was always there! Bewildered, Mike peered around

him. The Moon must still be rotating . . .

To his right, the Earth was a vast, incredible crescent—and the plain was full of ships. They were of many different sizes, but they all had the same lump cylindrical shape. Tiny figures moved among them.

Stuart was right, he thought idiotically. You go the wrong way on a one-way street, you've got to have accidents. He turned and ran.

Behind him the lock swung open. Two ten-foot tripeds turned to each other and gestured rapidly, like nests of striking snakes. Then one of them hopped after him and picked him up.

—LARRY NIVEN

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DEATH and BIRTH of the ANGAKOK

by HAYDEN HOWARD

Illustrated by GAUGHAN

*This was the start of the Eskimo
Invasion—a creature from beyond
the stars, and a Stone Age human!*

I

Behind his back his sled dogs whined as if sea demons were hunting under the ice. Something clanked down there. Through the soles of his mukluks, Peterluk felt the sharp echoes. His youthful eyes narrowed.

A strange grinding — a metallic sound was rising from the Arctic Ocean beneath the ice.

"Turn-nrak — spirit, go away!" Peterluk threatened shrilly in his jumbled English and Eskimo speech. "Go away. This person's Grandfather is an *angakok*!"

The glittering pack-ice bulged. Something big, very big — only

a demon-whale would try to break through ice this thick! Peterluk glanced toward the hopelessly distant gray shore. There, within the dark speck of a tent his Grandfather was crouched listening to the world. Under Peterluk's feet the ice shuddered.

"Grandfather, help me." Peterluk's voice faded into distance.

The ice cracked. Whimpering, the sled dogs backed away, further entangling their traces. The dogs yipped as a thunder boom struck Peterluk's eardrums. A cloud-trail shrieked across the Arctic sky.

"*Kabloonas* — whitemen, help me!" Peterluk shouted after the vanishing jet bomber.

But the whitemen had become as distant as the stars since that moment of terror when the Eskimos ran away. The Eskimos had not even returned to collect their Family Allowances from the Canadian government. The whitemen would not help him.

A jarring thud beneath the ice hurled Peterluk to his knees.

"Grandfather, help me! Grandfather —" Then Peterluk's broad face contorted in realization. "Forgive me, Grandfather — if my thoughts of you were bad."

He tried to run. A bubbling uproar of water erupted from a crack like an open mouth — to devour him.

"Have mercy, Grandfather." Peterluk stood motionless. "This poor miserable person was not trying to run away from your island." The dogs howled.

"Grandfather!" Peterluk wailed, leaping, shouting, his shrill voice starting a flight of gulls toward the island, toward his Grandfather's distant tent. The tent was much bigger than an ordinary Eskimo tent because of what it concealed from the airplane-eyes. At this distance, the tent was smaller than the front sight of Peterluk's rifle. Across the shimmering ice, Peterluk knew his voice flew to the *angakok*, crouching in the darkness of the tent upon the navel of the world.

"Grandfather, this person was thinking only good thoughts about you. This person would never leave you while my wife is in your talons."

Peterluk spread his arms. "You are holding my baby son. Gladly, this poor person will hunt seals for you always. This person will never complain again. This person will drag your sky iron anywhere. Like a sled dog this person will drag your heavy sky iron wherever you point your face. *Eh-eh*, yes — yes, joyfully this person will drag your sky iron. My wife and baby son when he is bigger will drag your sky iron —"

Peterluk gasped for breath, unused to such oratory. Behind his back the ice growled.

"Please, Grandfather, great *angakok*, great worker of magic, please send away your demon." Peterluk clutched his rifle.

"Who will bring fat seals for you? If this poor hunter is devoured by the demon, you will starve. Do not let the demon come out of the sea. *Eh-eh*, this person promises to kill you — kill a fat seal for you. Grandfather, far-dreaming *angakok*, into your jaws a fat seal!"

The ice creaked. The dogs' voices whined. The demon had not devoured them.

With his finger on the trigger of his rifle, Peterluk turned, peering at the new lead of open water. The low sun shot arrows into his stinging eyes. He could not see the demon in the water.

Peterluk scowled at himself. Perhaps the bad noises had been only a current under the ice dragging something, a log, a dead walrus, a dead seal, a fat seal. The corners of Peterluk's eyes wrinkled like smiles.

"Ha-ho! You rabbits!" Peterluk shouted at his sled dogs. "What were you afraid of? A current? *Ha!* Get up! We go!"

But Peterluk's painfully learned caution returned, and he bowed toward the distant shoreline. "Thank you, Grandfather, for

your mercy this person will bring you a fat seal."

A bad thought crept out of his skull: *May it choke you to death.*

"Dog! Why are you lying down?" Peterluk yanked the nearest dog by the harness so hard it yelped.

"Grandfather, this person is hurrying." With kicks and shoves, Peterluk unsorted the tangled dogs. "*Eh-eh*, we will travel far out to open water where the seals are. Oh, merciful *angakok*, we will leave this demon hole."

Under Peterluk's hand the lead dog was shivering with excitement as if a seal had risen nearby. Impossible. Peterluk was afraid to look. No seal would rise in this bad place.

In unison the dogs turned their heads toward the demon hole. Peterluk leaned forward, blinking. A dark spot? In the shimmering lead of open water a dark spot was swimming. A seal in the demon hole? Peterluk's massive Eskimo jaw sagged.

He became motionless, almost. Convulsively, he swallowed the saliva flooding his hungry mouth. If he shot the seal in the water it would sink, but in a moment the seal would notice the dogs and would dive forever. Peterluk's head began to hurt. What should he do?

Overhead the shriek of an-



other jet split the sky. Peterluk's big teeth flashed white, a grin of disgust and relief. He did not have to decide what to do. The seal would dive.

"Good-by, brother seal."

Then Peterluk giggled. Astonishingly, not even the noise from the jet bomber had made the seal dive. The seal was still swimming toward him, swimming awkwardly as if injured, splashing through the water, swimming so strangely. Seal or demon?

"Na-una — this person does not know," Peterluk whispered, squinting with bewilderment at this world he could not understand.

"Grandfather, great *angakok*, tell me what to do. The seal-demon is swimming closer."

During Peterluk's short life the pieces had not fit. As a nose-picking boy he had witnessed mumbling Canadian doctors holding up magic skeleton pictures. He had watched open-mouthed while his father beat a hoop-drum and another older Eskimo, perhaps his Grandfather, had danced and danced and fallen down, was bound with thongs, yet vanished from the darkened igloo, and reappeared! The old Eskimo said he had been away hunting caribou on the moon and held up a caribou haunch to prove it.

This was more than four winters ago when Peterluk was an unworried boy who did not have to decide anything.

Another important time, four winters ago, when the Eskimos came into the Post to collect their Family Allowances the southern horizon had sparkled.

"End of the world!" the Eskimo minister had shouted, but he had been wrong.

Peterluk's father had laughed and cursed like a whiteman, and stolen a can of kerosene. The Eskimos had left the slant-eyed minister and fled north, leaving the whitemen. "Forever," Peterluk's father had insisted. "End of their ways."

But whitemen's spirits were everywhere, perhaps as strong as demons! Was this a demon or a seal?

"Matthew, Mark, Luke and John," Peterluk whispered toward the demon hole, "command this one little wounded seal to climb up on the ice."

The seal raised its indistinct head above the water. It was trying to see up on to the ice. But it sank back.

"Grandfather," Peterluk hissed, "tell your seal to climb up on the ice."

Again it heaved up. Oddly, one of its flippers raised like a hand. Peterluk giggled nervously.

As he watched, the seal bent its head beneath the surface. Peterluk's hand tightened on his rifle. Only the seal's gleaming back was visible. Peterluk knew it was preparing to dive. The seal would vanish forever. Peterluk raised his rifle.

"Iyonamut!" Peterluk exhaled. He shot.

His ears ringing, snatching up his harpoon, Peterluk raced toward the thrashing black shape. He cried out, stumbling, as it sank. He fell to his knees at the edge of the ice where it had been.

Peering down into the shadowy water, Peterluk witnessed its dark silhouette drifting downward and away. Violently, he plunged his harpoon. His hand stung. The shaft of the harpoon slashed the water back and forth, torn loose from his hand by the agonized strength of the animal under the water.

With a shout of triumph, Peterluk hauled at the harpoon line, and the harpoon's iron and ivory barbed head twisted within the flesh, anchoring itself. The freed wooden shaft floated back up the taut line to the surface. Peterluk grabbed it, and he jammed the wooden shaft into a crack in the ice for support. He braced himself in case the seal made a sudden rush, for this was no ordinary seal and he did not know what to expect.

The tugging line signalled its struggles, weaker and weaker. His breath wheezing in and out, Peterluk waited for the seal to drown down there.

When he could feel no motion except a slight dragging from the current, Peterluk began drawing in the line hand over hand, his movements becoming tight-muscled and hesitant as the long blur neared the surface. Tangled in the line, it was rising upside down.

Its hind flippers seemed split apart much farther than a seal's. On its back appeared a hump, a long hump strapped on like a dog's pack, a seal with a pack on its back?

Peterluk's mouth opened. But his stubby hunter's hands continued hauling up the line.

Rising, turning in the current, the dark shape struck the under-edge of the ice with a startling metallic sound like a ship's bell. Its front flippers swayed out thin and black and much longer than a seal's. Then its slack head was tilted upward in the water.

Peterluk's soul leaped out of his mouth in a scream of horror.

Its face, its face was all one huge round gleaming eye.

Falling away, snatching up his rifle in his flight to the sled, Peterluk whipped his dogs across the ice toward the distant shore. There was no hissing or roaring

of demons behind him. Glancing back, he glimpsed nothing but glaring white pack-ice.

"*Aii-ee!* Its tribe, they are pursuing me *under* the ice!" Cracking his whip, he belabored the sled dogs toward the drift-wood beach.

II

He shouted at his wife to get the baby out of the tent. "We must go from here! Get my son!"

"The *angakok*, it holds the baby." She lowered her head in a gesture of helplessness. "What are you thinking of? *Una?* What is it?" She giggled nervously. "What are you afraid of now?"

"Demons! Look — you — you stupid woman. A tribe of demons coming. This unlucky person has shot a seal demon. Now its whole tribe is coming for our blood and eyes."

Stupidly, Peterluk's wife stood staring out over the pack-ice. "There is nothing but ice."

Her dead father had travelled much with missionaries and had left her with a stupid lack of understanding when it came to demons.

"Demons! There, and there, and everywhere. Seal demons. You, you can't expect to see them!" Peterluk shouted. "You woman!"

Peterluk plunged into the darkness of the tent. "Grandfather, great *angakok*, help me. Demons are coming! Seal demons. Through no fault of his own this person accidentally shot a seal demon — what is that noise? Grandfather, its tribe comes for blood vengeance."

The *angakok*'s hump-backed shape swayed upward. Within the big tent, the *angakok* towered above Peterluk. Muttering like an uneasy bear, it held Peterluk's baby son cradled in its talons. It leaned weakly against the huge dented ball of sky iron.

In the dimness of the tent, clothed in its gigantic parka of caribou skins sewn by Peterluk's wife, the *angakok* resembled a man — if the beholder needed to see a man. Like a man, its burned face had two white eyes. Its drooling mouth was ever hungry for seal meat. Its taloned hands were as quick as the hands of a man. From its hands fire had engulfed Peterluk's father. Only a powerful Eskimo *angakok* could work such magic. After the first winter, it had remembered and agreed with Peterluk. Because it had flown far from the Earth, because it was the most powerful *angakok*, it must be Peterluk's vanished Grandfather returned from the sky, and Peterluk had believed!

"Grandfather, use your power!" Peterluk scuttled sideways within the big tent, a tent too big, too cold because its purpose was to hide the sky iron, which was neither meteorite nor satellite.

The round mass of the sky iron, higher than a winter igloo, occupied the whole center of the tent. To Peterluk's dismay, he noticed that the perpetual buzzing and clicking from the broken wire intestines within the sky iron sounded weaker. Even the magic blue light which glowed through the burned hole in the side of the sky iron seemed dimmer. Peterluk suspected that the *angakok* could not renew its magic power from the sky iron, the broken sky sled in which it had fallen like a flaming egg from the stars. Now, when much power was needed to protect Peterluk from the seal demons, the *angakok* leaned weakly against the sky iron and did nothing.

The baby whimpered.

"Hear the demons approaching!" Peterluk cried out. "Even my baby son hears the demons. Grandfather, this person did not mean to shoot the seal demon. Protect me, or let us flee from this evil island."

Dropping to his knees, Peterluk seized one of the long driftwood sled-runners upon which

the sky iron was permanently lashed. The *angakok* growled in warning.

Peterluk sprang back. His head began to hurt as the *angakok's* eyes glowed, expanding dream pictures inside Peterluk's head.

The blurry picture of a big thing shaped like a whale with a hump on its back was moving beneath the ice. In its belly something burned like a distant bonfire. This was not a clear picture, and Peterluk had the frightened feeling that the *angakok* did not understand what it was seeing.

The *angakok* forced another picture into Peterluk's head, the whale-thing, now floating on the surface like a ship. The *angakok* seemed to be asking him a question. Little naked Eskimos appeared on top of the whale-ship. This was impossible. Any ship was impossible.

"No ship out there," Peterluk shouted slowly, trying to make the *angakok* understand. "Demons, protect us against demons. Seal demons."

Peterluk tried to brush away the ship pictures with his hand.

"Too much ice for a ship," he insisted. "My own eyes have seen no smoke, no masts on the horizon, no trading ship, no ship. Grandfather, listen, it is demons we must fear."

Outside the tent, the dogs began to howl.

"The demons are close," Peterluk gasped. "Grandfather, great *angakok*, now, quickly, burn them with all of your magic power."

Three times Peterluk had seen the *angakok* turn iron into fire. The first time four years ago other Eskimos fell down, burning and dying, Peterluk's father among them. The second time had been to punish Peterluk when he tried to escape from the island. The third time had been when the parachutist landed, so charred that Peterluk had been unable to recognize whether it was an Eskimo or a whiteman.

But now the *angakok* stood swaying and holding the baby and doing nothing. A dog whimpered outside the tent.

"Grandfather, the seal demons have arrived! Quickly, work great magic." Peterluk knelt, his heart thudding.

During the four years since his Grandfather fell from the sky Peterluk had told his Grandfather many tales of the magic of other Eskimo *angakoks*. Although his Grandfather could speak no more clearly than a polar bear, he listened to Peterluk's words—even when Peterluk was not speaking. The *angakok* had crowded questioning

pictures into Peterluk's head as if his Grandfather had forgotten the ways of the Eskimos. Soon the *angakok* had become less interested in demons, more interested in the world to the south. How many people? Peterluk tried to show there were more whitemen than the fingers and toes of all the people who could be crowded into this big tent. Their weapons? Rifles like his. The noisy flying objects? Airplanes containing doctors, ministers and Canadian Mounted Policemen. What carried the airplanes through the air? The magic power of the Canadian Government, Peterluk had explained, but powerful *angakoks* could fly without using airplanes. Now the *angakok* must use his power.

"Grandfather, you must use fire magic against the seal demons!" Peterluk gasped. "Burn them like you burned the Eskimos!"

A triangle of light stabbed into the tent. As the tent flap opened, Peterluk shrieked. He thought the seal demons had come for him.

The silhouette was his wife.

"A ship!" she laughed excitedly. "After four years, a ship."

"There is no ship!" Peterluk shouted. "Come in here quickly. A ship is impossible. It is a trick of the seal demons to make me go out on the ice."

But his wife, with her usual foolhardy attitude toward demons, scurried outside, shouting for Peterluk to come out.

"A trading ship!" she shouted. "A wonderful trading ship."

Peterluk whimpered. As far out as a whole day's sledding from shore the ice was too thick for a trading ship. Even a powerful ice-breaker would have been visible on the horizon for many days before it finally arrived, slowly butting its way through the ice.

Behind Peterluk in the dark tent the *angakok* was clutching the baby to its chest. On the *angakok's* back its growing hump heaved and writhed as if it had life of its own, and the *angakok* lumbered past Peterluk to the tent flap. Squatting down, the *angakok* looked out into the bright world. It emitted a coughing cry.

When Peterluk peered out past the *angakok's* massive caribou-skin leggings into the glare of the ice, his eyes narrowed.

"It is impossible," Peterluk murmured apologetically.

But this low ship was so distinct he could see even the men on top of the tall gray cabin as if they were really there.

"Wave to them, build a signal fire!" his wife shouted. "Now is our chance."

Peterluk did not know whether she meant their chance to escape from the *angakok* or their chance to trade with the white-men.

"See the *Kabloonas* climbing down on to the ice," she shouted. "See, they are handing down wonderful shiny things, fine guns, wonderful black boxes. All those black boxes, they must be loaded with trade goods, mirrors, cotton cloth, Family Allowances, CARE packages, and we need many cans of kerosene."

His wife bustled past him into the tent and began to gather up the white fox furs.

"Hurry up," Peterluk's wife shouted. "This person knows they are signalling for us to leave the *angakok* here and go out to their ship. We will trade fox furs for all sorts of wonderful things. Tell the *angakok* we will soon return. The *angakok* must let us leave."

On the low ship, a light was winking. The ship was gray as a whale.

"The ship," Peterluk murmured wonderingly, "it is like a great kayak."

Neither Peterluk nor his wife had ever seen a submarine.

"This person will take my baby now." Peterluk's wife signed for the *angakok* to hand her the baby.

The *angakok* did not do so.

Always before when whitemen approached in airplanes, the *angakok* had hidden.

His Grandfather had growled and seemed afraid of the whitemen's planes. But now the *angakok* wanted Peterluk to drive the sled out over the ice toward the whitemen's ship.

"Demons' ship!" Peterluk bleated in realization. "No whitemen! Seal demons. Grandfather, you are giving me to the demons!"

He tried to run, but the magic thoughts of the *angakok* were too strong.

"Trade for flour." Peterluk's wife shouted after them. "And needles!"

While Peterluk drove the sled out over the ice toward the ship, he muttered with fear. From the corners of his eyes he studied each crack in the ice, half expecting a vengeful demon to spring up. The sled lurched. Concealed under the fox furs, the *angakok* growled in warning. Hisses of icy wind slithered across the pack-ice.

"Grandfather, protect me!" Peterluk stared at the mirage of the ship.

The low ship appeared almost real. The small shapes like men moved on the roof of its cabin. They climbed down awkwardly like real whitemen.

But the mast was not believable. It resembled a thin stove pipe with a knob at the upper end. And a strange round net was turning on the roof of the cabin, sweeping the sky.

Peterluk's brow wrinkled. If these were whitemen — trying to net low-flying puffins at this hopeless distance from the bird nesting cliffs, they must be starving.

The small man-shapes were setting up something on the ice. It had three thin legs. Now they were attaching something strange on top. It was longer than a shotgun barrel, thicker than —

Agitated picture-thoughts from the *angakok* crowded into Peterluk's head. Stop the sled.

"Hoo!" Peterluk halted the sled dogs. "Grandfather, those men are all dressed in gray, like seals. Seal demons, too many for you to burn. Let us go back."

To Peterluk's horror, the *angakok* pictured to him to pick up a white fox fur and walk toward the seal demons.

"No, Grandfather." But Peterluk's leg stumbled forward over the sea ice.

He was walking beside a lead of open water toward the ship. With a startled whimper, he clutched the fox fur to his chest. From the corner of his eye he glimpsed his own harpoon shaft still wedged in a crack beside the

lead. Here he had harpooned the seal demon. His eyes widened. Here came the seal demons from the ship, their legs running toward him.

"Grandfather, protect me!" Peterluk closed his eyes.

His grandfather had shown great power four years ago when the Eskimos hammered on his sky iron. The Eskimos had found the sky iron in a heat-glazed hole. A star had fallen from the Arctic night. Some said it was a meteorite for which the whitemen would give a reward. Others had said it was a satellite for which the whitemen would give a bigger reward. Laughing, they had hammered the big dented ball with their rifle butts, and the *angakok* had emerged, growling.

Women shrieked. Someone had shot. The *angakok* roared like a speared bear and the Eskimos' knives and rifle barrels had glowed red, exploding. Flames like fur covered the nearest Eskimos. Children became darting streaks of flame. Only Peterluk and a girl who was farthest away survived. When Peterluk had tried to flee, the *angakok* had burned him — a little. When Peterluk had knelt before the *angakok*, he had understood it must be his vanished Grandfather. Only his Grandfather could have such power.



Now Peterluk knew his Grandfather's power had leaked out. Peterluk could hear the seal men — running — closer and closer.

"Matthew, Mark, Luke and John," Peterluk murmured in desperation.

For a long time he had suspected his Grandfather's power was diminishing. During the four years since the burning of the other Eskimos, Peterluk had grown to the strength of a man. Often he grumbled when the *angakok* indicated it was time to break camp, to move the heavy sky iron. When he was slow to obey the *angakok* had burned him. Later, as the *angakok's* hump had grown bigger it simply waited. Muttering to himself, Peterluk finally would lever the sky iron on to the sled. He would obey, although he could not understand why the *angakok* desired to move to a new camp while there was still good hunting here. Was the *angakok* searching for new power?

Peterluk could not know that they were following the North Magnetic Pole. The focus of the Earth's magnetic lines of force is a shifting thing. In the distant past of 1903, Amundsen located the North Magnetic Pole at Latitude 71° North, Longitude 96° West on the Boothia

Peninsula. By 1945 it had shifted with many hesitations and waverings in a true northerly direction several hundred miles to Latitude 76° North, Longitude 102° West. By Peterluk's time the North Magnetic Pole had shifted across the Boothia Peninsula and its ice-locked islands. Induced by the mysterious flowages within the core of the planet, it wavered across the coastal islands, closer and closer to the last shore-camp beside the deepening Arctic Ocean.

Here, Peterluk had gone out on the ice to hunt fat seals for his Grandfather.

Peterluk knew his Grandfather's power was diminishing because his dreams had changed. In the night Peterluk would awaken moaning with loneliness, not his own. It was loneliness from the overlapping dreams of the *angakok*. In first dreams there had been two suns circling. Twin shadows spread out from moving things. Peterluk had cried out in his sleep until he had grown used to these shape-changing things for which he had no words. Even the patterns of the stars were strange. But more and more the *angakok's* dreams included familiar snow and ice, and Peterluk recognized himself, his wife, the sled dogs, and airplanes droning high overhead. In its dreams the *angakok* moaned

at the airplane. Peterluk knew the *angakok's* power must be weak if it feared the airplanes of the whitemen.

Peterluk's nostrils flared — the scent of tobacco. He opened his eyes and shouted joy at the approaching men. They were not seal men. They were whitemen. They smelled like whitemen. Peterluk rushed to meet them, his hand outstretched in a whiteman's ceremonial greeting.

As he shook hands with each of the gray-uniformed whitemen, Peterluk's smile spread wider and wider, for he could not understand a word they said. Their Canadian was the strangest he had ever heard. Not a word was familiar to him, and he nodded politely as if he understood.

The whitemen were pointing this way and that. Peterluk glanced toward the sled where the *angakok* lay concealed beneath the furs. In a moment he planned to lead the whitemen to the sled. He would snatch off the white fox furs and laugh at the helpless squirming of the *angakok* because magic will not work against whitemen.

Peterluk's eyes narrowed. In those black boxes beside the ship there must be all sorts of wonderful things.

Peterluk imagined knives and fishhooks, gramophone records

and cartons of gleaming rifle bullets. Everything a man could possibly want soon would be his for the trading. No doubt there was an alarm clock in one of those black boxes for his baby son to play with, and silk scarves, face cream, lip grease. His wife was a fine woman and deserved all of these things.

Peterluk held up the fine white fox fur. After four years of trapping without trading he had more fox furs than any Eskimo! He giggled with embarrassment.

"Only a few poor foxes has this person," Peterluk spoke with an Eskimo traditional self-depreciation before strangers. "The foxes have outsmarted me again—"

Never had Peterluk seen finer furs than his own!

But the most important whiteman barely glanced at the fox fur. Evidently he was a shrewd trader. He shaded his eyes as if he was looking around for something else. He made thrashing motions with his arms.

Peterluk's eyes widened with understanding. "Seals. *Eh-eh*, yes-yes, seals."

Evidently, they had caught few birds in the slowly turning net on the roof of the cabin of their ship. They must be very hungry for seals.

The man made more swimming motions.

There would be no seals where a ship was, but Peterluk smiled and nodded, unwilling to contradict such an important man.

"*Eh-eh, seals,*" Peterluk agreed patiently, while the man made snorting sounds and thrust up his gray-capped head like a seal rising from the water.

Peterluk's admiring gaze clung to the shiny medals on his chest. The man had so many that surely he would trade.

Peterluk thrust out the fox fur. Speaking slowly in Canadian and very loudly so that the men would be sure to understand, Peterluk waved the white fox fur back and forth. "Foxes! Trade! Kerosene! Bullets! Bang-bang!"

At this, they all began talking so much his head hurt. Their caps bobbed on their heads with the loudness of their talking. Peterluk's smile widened still further. More than anything he desired one of those fine gray caps. Shyly, Peterluk put his hand to his head. These men had plenty of caps, each cap decorated with a beautiful red star.

The important man smiled thinly at Peterluk. "Droog. Da? Pa-pi-ro-sa?"

Peterluk accepted the pack of cigarettes and thrust it into the voluminous sleeve of his parka.

His covetous gaze clung to the handsome gray cap on the important man's head, the lovely red star.

But the whiteman was pointing at the lead of open water, at the cracks, at Peterluk's distant tent.

"Amerika-nets?"

Did this mean seal meat? Peterluk spread his arms. "There is no seal meat in my tent," he lied.

This was not a hospitable way for an Eskimo to talk, and Peterluk felt ashamed. "This person is a very poor hunter, but you *Kabloonas* are my friends. Yes, yes, this person will hunt seals for you — after we have traded."

Peterluk's smile returned. He could see a whiteman clambering down a ladder from the roof of the tall cabin, carrying a sack. The man tossed the sack to other whitemen waiting on the ice. One of these men ran with the sack toward the important man and Peterluk. Undoubtedly, the sack contained what they wished to trade. The whitemen grouped around Peterluk. The sack was to be opened. Peterluk smiled expectantly.

Peterluk's mouth clicked shut. Instead of trade goods, from the sack was lifted a pair of dark cut-off fins and a huge round shiny eye.

IV

Peterluk shrank from these cut-off parts of a seal demon, but the whitemen showed no fear, touching them with their hands, pointing along the leads, making searching motions with their faces, then stared hungrily at the cut-off parts and shifting their gaze to Peterluk's blank face.

Peterluk's stubby hand rubbed his jaw. His eyes narrowed to slits of thought. He tottered like a man overcome by sleep.

"It is understood!" Peterluk shouted with joy. "You whitemen have traveled here to hunt seal demons. The fins, the round eye, like the one killed by my rifle and harpoon. But mine was bigger, much bigger!"

Spreading his arms, Peterluk stood on tip-toe.

"Big-big, very big," Peterluk explained to the important man.

Peterluk slapped his own chest. With a shout, he snatched up his rifle, thrusting its rusty muzzle at the round eye. "Ha! Bang!"

Whirling, he aimed his rifle along the open lead. "Bang! Ha! Big-big!"

The whitemen had to run to keep up with him. They were wheezing for breath as they neared the edge of the lead. Peterluk could see the dark straightness of his harpoon shaft.

With his hand feeling the dead weight on the harpoon line, Peterluk nodded up at them. His own seal demon had not been freed by others of its tribe. Its body still hung deep in the water on the other end of the line.

Squatting, the taut line in one fist, his rifle in the other, Peterluk waited, smiling with pride. To kill a seal demon was a difficult and dangerous thing, and now he frowned for dramatic effect while studying the pale faces above him. These whitemen were breathing hard, clutching their crooked rifles as if afraid the seal demon still might be alive.

Peterluk's smile gleamed like an iceberg while he hauled in the line. As the dark shape of the seal demon neared the surface, the whitemen exclaimed with awe and fear, shouldering Peterluk aside and drawing in the line so rapidly that the iron pack on the seal demon's back gonged against the underside of the ice.

The whitemen lifted the demon up, bent over its body. They shook it to be sure it was dead. With a cry, one tugged at the protruding ivory harpoon head. Another laid his ear to the seal demon's chest, listening to be sure its heart had stopped.

To Peterluk's surprise they

were able to remove the round glass eye by unstrapping the back of the head. Inside was a white face in imitation of a man's. It looked like a drowned man's—

From their angry shouts, Peterluk realized that the seal demon must be an enemy of their tribe. Peterluk was glad to have helped them.

"*Eh-eh, yes-yes, big!*" Peterluk slapped his chest and grinned triumphantly at their flushed and angry faces.

Their faces sprang at him. Joltingly, he was shoved backward. His rifle was snatched away. Peterluk gave a great cry of horror as one of the whitemen raised Peterluk's rifle high and hurled it into the bottomless lead so that Peterluk's family would starve.

Lurching forward, Peterluk glimpsed closed hands striking at his face. He felt a knocking against his head and blindly tried to turn away, but they were clinging to him like Wolverines. The men behind twisted his arms so that he growled with pain, and the ones in front merged in a blurr of yelling faces and smashing hands like hailstones against his face.

As Peterluk heaved to buck himself free, his *mukluks* slipped. He pitched forward, crawl-

ing on the ice, their boots thudding against his ribs. He cried out in horror and humiliation. They were kicking him like a dog.

Like a dog he was being beaten by their rifle butts.

He cried out for help. "Grandfather!"

His face was mashed into the ice, and he heard himself choking.

The whitemen's voices were shouting angrily among the thuds of boots and rifle butts against his ribs and skull. "*Oobiy-tsa!*" they were shouting. "*Oobiy-tsa! America-nets oobiy-tas!*"

Peterluk struggled upward to his knees, and was beaten down. Like a dog he was being beaten. Even his Grandfather had forsaken him. Peterluk merged his face with the ice like a dying seal, willing himself to die, to leave this humiliation.

Faintly, he heard the *Kabloonas* shouting to each other. "*Lyu-di? Nye-pri-ya-tel?*" they were shouting. "*Ta-va-rishch, sharko li vam?*"

The boot toes in front of his eyes pointed toward shore. The men shouted unintelligibly in their strange language.

"*Da, comrade Captain, my rifle barrel has become hot also.*"

"The metal parts of my binoculars are hot!"

"Pevski, you are the polar expert. What do you make of it?"

"In lieu of more complete evidence I must propound the tentative theory that there is some casual relationship between the magnetic anomaly we were sent here to investigate and this sudden heating of metal objects. By heating I mean in a technical sense the sudden intensification of molecular —"

"Shut up, Pevski! I think it is an imperialist death ray!"

"What is it Captain? Are you wounded? Your face shows pain."

"My hand! My medals are hot! Comrades, this is your captain speaking. Fall back to the submarine. You, too, Pevski."

"My own highly tentative theory is that their, not to be underrated, research are focusing a magnetic laser, that is a concentration of the Earth's magnetic lines of force which would in some ways be analogous to a laser which would—"

"Faster, Pevski!"

Raising his face from the ice, Peterluk watched blearily while the whitemen ran toward the long ship. They were dragging the body of the seal demon, his seal demon.

Peterluk struggled erect. He spat blood. The ruins of his face contorted.



"Like a dog," he croaked, coughing, swaying.

"Like a dog, beaten like a dog." He looked around for his rifle, and his bloodshot eyes widened in horror as he remembered. "My rifle, they threw my rifle in the lead so my family will starve, and they beat me —

"Beat me like a dog!" he screamed in mounting rage.

"Grandfather, you didn't help me." Peterluk staggered toward the mount of white fox furs on the sled. "You, you let them beat me like a dog.

"See, Grandfather!" Peterluk hurled away the fox furs which had concealed the *angakok*. "They are climbing on their ship. They are lifting my seal demon on to their ship. They have stolen my seal demon. They have beaten me like a dog. You, you have done nothing!

"Grandfather! You let them beat me!" Peterluk yelled. "Like a dog they beat me, like a dog!"

Peterluk kicked the sled, and the *angakok* groaned, turning on its side, its back to Peterluk. Under its misshapen caribou skin parka, its huge hump quivered like the belly of a woman whose birthtime has come.

"Grandfather, why didn't you burn them? You couldn't burn them. You can't even burn me. Your magic is gone. Dying thing, get off my sled!"

Peterluk raised his whip handle. "Get off my sled! This person will take his wife, his son, his furs, his food, his tent — and leave this bad island. And leave you to starve! Die!"

Vaguely, Peterluk's ears heard the dogs whimpering. Inside Peterluk's head the *angakok*'s picture-thought writhed.

"Get off my sled!" Peterluk shrieked. The *angakok* sat up.

"You can't reach me with your magic." Peterluk felt a coldness at his back. "You are no *angakok*. Your magic has leaked out —"

Something in Peterluk's head turned him toward the whitemen's ship. Peterluk's bones melted. His wide jaw sagged as he fell to his knees with awe. For the ship was sinking!

Already the dark water of the lead formed across its low deck. Instead of leaping overboard to save themselves, the whitemen were climbing down the smoke-hole into the cabin, vanishing into the sinking ship.

Peterluk moaned with awe.

A bubbling roar rose against Peterluk's eardrums as the tall, gray cabin sank down. The ship's stubby mast sliced downward through the water until only its topmost knob survived, swiveling desperately from side to side, glittering like a drowning eye, and then it, too, was gone.

Abjectly, Peterluk crawled toward the powerful *angakok*. Not a single whiteman had been allowed to escape. With his own eyes, Peterluk had seen them all destroyed. As easily as if it had been a skin kayak, the *angakok* had sunk the whitemen's ship.

A faint picture of himself driving the loaded sled back to the tent entered Peterluk's throbbing head.

"Yes, yes, at once, Grandfather!"

V

When they reached the shore, Peterluk yelled at his wife to come out. "Quickly, woman. Help me get him on to his feet. Careful now! My Grandfather has just sunk the whitemen's ship and he is very tired."

Inside the tent, the *angakok* staggered against the sky iron. His weight was too much for them both to support. He fell heavily, like an iceberg from the face of a glacier, he fell.

Peterluk looked down. "My Grandfather, is he dead?"

Already the huge face seemed to be withering.

Peterluk's wife screamed.

On the *angakok*'s back the great hump was splitting. Opening, it drooled slime. A slippery thing poured out as long as a man.

Gleaming, it writhed, sat up, pawed at its slime-clogged eyes with one hand — five fingers. Its wide open eyes stared up at them. It stood up as tall as Peterluk — and smiled.

"Look," Peterluk's wife gasped. "This Eskimo man, he looks like you!"

With a quick motion the naked Eskimo walked as if he had been in the tent before. He reached for the ptarmigan rag behind the seal oil lamp and began to wipe the slime from his body.

"Like you —" Peterluk's wife marveled, and Peterluk moved forward. "He looks like you."

"Utak?" Peterluk asked, naming one of his dead brothers, for infant mortality among the Eskimo is high. "*Ohud-lerk? Ar-luk?*"

"*Edwardluk?*" he asked the smiling young man. *Edwardluk* had been Peterluk's oldest brother, born dead nine summers before Peterluk was born, but Peterluk remembered the name and circumstances as they had been told to him by his father.

The young man cocked his head, and seemed to ponder this name for a moment, his eyes narrowing although his smile remained wide.

Then the young man replied in a voice like Peterluk's, speaking the tribal mixture of Eskimo words and thoughts mixed with

whitemen's expressions as perfectly as Peterluk did, and extended his hand in a ceremonial handshake.

"This person is *Edwardluk*, your oldest brother," the young man answered. His hand was warm and very strong. "*Eh-eh*, yes-yes, born nine summers before you," the naked young Eskimo laughed. Being older, it was evident that he must be wiser and stronger than Peterluk, more influential, a man to be listened to.

Edwardluk turned his head. "Woman, get me my brother's other parka. Quickly, woman! We must break camp."

He smiled at Peterluk. "My brother, you must sledge the — the sky iron far out on to the ice and upset it into the water. *Eh-eh*, we will make it disappear forever. We don't need it anymore. This thing also, the body of — your Grandfather, we don't need it either."

Edwardluk glanced down at the huge, shriveled body, then whirled at Peterluk's wife. "Hurry up, you stupid woman, find me *mukluks* for my feet. There is much to be done."

He smiled at Peterluk. "My brother, we must hunt — kill much meat. This is a big planet. Many Eskimos will be born, all hungry!"

Peterluk grinned with embarrassment and pleasure. It was good to have a brother. Scratching himself, Peterluk marveled how much his brother resembled — himself.

"*Eh-eh*," Peterluk giggled. The only difference was the small hump growing on his brother's back.

His brother's friendly arm closed around Peterluk's shoulders. He laughed into Peterluk's ear. "*Eh-eh*, soon many sons, many daughters to feed. In a few seasons we Eskimos will fill this planet." —HAYDEN HOWARD

THE ALTAR AT ASCONEL

He was sworn to avoid violence—yet his whole world depended on destroying the creature whose race had once owned the entire Galaxy.

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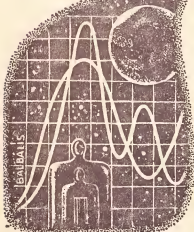


BY WILLY LEY

SYMBOLICALLY SPEAKING

There are symbols and symbols, of course.

One kind is the symbolic expression in speech or in writing where a statement is made for the purpose of conveying something else. A virtually perfect example of such writing is a small but old book known as the *Psychologist* that was composed by



an otherwise unknown early Christian writer for purposes of meditation.

The first paragraph of that book deals with the lion which is said to "have three qualities". The first is that it erases its tracks with its tail, so that the hunters cannot follow. The second is that it sleeps with its eyes open and the third that it is born dead but that, after three days, its father breathes into its face and it then comes to life.

These three "qualities", the book goes on to explain, have their meanings: the first one means that the incarnation of Christ is a mystery that cannot be fathomed. The second quality means that, while the body of Christ was dead, his divine spirit was awake in heaven and the third, of course, refers to the resurrection after three days.

But there is also the "symbolic expression" that has the purpose of creating a mystery where there is none. The alchemists excelled in that kind of symbolism by using descriptions for which the term circumlocution is not quite strong enough. When they spoke of the "dried blood of a blue-gray dove" they meant a bright orange-red powder that could be derived from bluish-gray lead. Plumbers and fitters of our time just call it "red lead", and a chemist would refer

to it as Pb_3O_4 . That kind of symbols, which are really abbreviations, is the kind I intend to discuss.

Before going on to symbols that could be spelled out if it were desirable or convenient, a few symbols that could not be spelled out have to be mentioned, mainly because they are very old.

In order of age they are: the six-pointed star constructed of two triangles and known as the star of David. It symbolizes Judaism as the cross symbolizes Christianity and the crescent and star symbolizes Mohammedanism. Two other old Christian symbols are the so-called Chrismon, the intertwined P and X and the simplified drawing of a fish, both being symbols for Christ. Both are Greek in origin, the Chrismon just combines the Greek letter "ch" (which looks like an X) and the "r" (which looks like a P); while the fish is the result of an acrostic. The Greek words "Jesus Christos, God's Son, Savior" spell *ichthys*, the Greek word for "fish".

When it comes to the question of the oldest non-religious symbols that are still in use, I am not going to accept the statement: the letters you are using right now. Of course letters are symbols in that they stand for

sounds, but for purposes of this column we have specified that symbols are abbreviations, like \$, that could be spelled out if one wanted to do so. Now the early printers in the sixteenth century invented many abbreviations, mainly for the purpose of expressing Latin word endings like . . . *orum* . . . *umque* and so forth by single signs. The only one of these so-called contractions that is still in use is the ampersand (&). If you put it on its side you'll discover that it is an intertwined e and t, meaning *et*, Latin for "and" or "also".

But since we have defined symbols as something that could be spelled out, the ordinary figures have to be regarded as symbols. Of course every early civilization evolved its own way of writing figures. There was an Egyptian system, a Mayan system and many more. Some languages, notably Hebrew and classical Greek, did not invent separate signs for figures, but assigned number values to their normal letters.

An example of classical Greek usage is given in Fig. 1. It is the system used by Ptolemy in his famous work on astronomy and those of my readers who are familiar with the Greek alphabet may wonder about a few of the letters, namely those designated 6, 90 and 900. These signs are

ROMAN	I	II	III	IV	V	VI	VII	IX	X
INDIA (Gwalior)	१	२	३	४	५	६	७	८	९
ARABIC (EAST)	١	٢	٣	٤	٥	٦	٧	٨	٩
EUROPE 15 Cent.	1	2	3	4	5	6	7	8	9
— 16 Cent.	1	2	3	4	5	6	7	8	9
— 19 Cent.	1	2	3	4	5	6	7	8	9
THE NUMBER SYSTEM OF PTOLEMY:									
A α	1	Η η	8	Ξ ξ	60	Τ τ	400		
B β	2	Θ θ	9	Ο ο	70	Φ φ	500		
Γ γ	3	Ι ι	10	Π π	80	Χ χ	600		
Δ δ	4	Κ κ	20	Ω ω	90	Ψ ψ	700		
Ε ε	5	Λ λ	30	Ρ ρ	100	Ω ω	800		
Ζ ζ	6	Μ μ	40	Σ σ	200	h	900		
Ζ ζ	7	Ν ν	50	Τ τ	300	Δ δ, ρ, τ, ο			

Fig. 1. The development of the number signs. Ptolemy's system for writing thousands was to use a lower case letter preceded by o comma, the beta would then represent 2000, the gamma 3000 and so forth. Even though o sign for zero existed, the idea of positional notation did not occur to the Greeks.

letters that were already obsolete in the time of Ptolemy, the one designating 6 is called the *digamma* when a capital and *stigma* when lower case. When still used in writing by old-fashioned people in Ptolemy's time the *stigma* was a symbol in itself, serving as a contraction for the letters *sigma* and *tau* (hence its name). The 80 symbol bears the name *qoppa* and the 900 symbol is called *sampi*, both letters disappeared early as letters, but were retained for figures because the Greek alphabet in its later form did not have enough letters.

If you read in a book that: $(a + b)^2 = a^2 + 2ab + b^2$ your recollection of just when and why you were taught this formula may be hazy, but you are not in doubt for even a moment that the + means "add" and that = means "is equal to" and that a^2 stands for $a \times a$ or aa . Symbols like these are necessarily the result of agreement and convention, but even a convention has to be introduced by somebody. Who decided that + should be used to mean "add"?

All the mathematical signs we now use originated during a relatively short period beginning in 1500, that is soon after the invention of printing. Prior to the year 1500 all required arithmetical operations had usually been spelled out, manuscripts stated in words that you should add this and multiply that and that the correct result would be such and such.

One of the first to decide that this was a nuisance was the Italian mathematician Lusa Pacioli, also known as Luca di Borgo, 1450-1520. In his own works he used the sign p to express the instruction to add, the line over the letter had the purpose of indicating that this was an operational sign, not a factor. For subtraction he used m or de (for *deemptus*, in the sense of "diminished" or "reduced").

The idea of using symbols to indicate mathematical operations seems to have been applauded at once, but at first there was agreement on the principle only, not on the signs to be used. Pacioli's compatriot and near contemporary Niccolo Tartaglia (1500-1557) used the sign \emptyset to mean "plus", while he used the minus to indicate division. The sign \emptyset has survived on engineering drawings of continental European and Japanese origin, confusing American engineers who usually need a little time to discover that this is not supposed to be a Greek letter but just means "diameter".

During the second half of the sixteenth century the sign for addition was usually a capital P with a horizontal line drawn through it under the loop. By 1600 a number of German and Swiss mathematicians left off the loop and the + sign had been born. At the same time they agreed on the single line — as the sign for minus. The multiplication sign \times was introduced by the English mathematician William Oughtred in 1631. During the same year his compatriot Thomas Harriot advocated the centered dot \cdot for the same purpose. Both are still in use, the \times usually in elementary books and the \cdot in more advanced works. Unfortunately British

printers now often use the centered dot to indicate the decimal point—I wish they would stop, if only to save my correspondence because my American printed books naturally use it as the sign for multiplication.

Thomas Harriot also introduced the signs $<$ and $>$ respectively for “smaller than” and “larger than” and started writing a^2 and a^3 for aa and aaa . His sign for equality was the horizontal 8 which John Wallis, in 1655, used as the sign for infinity, defined as either the largest possible integer or else as the sum of all integers. Of course this is still the sign for infinity, while $=$ is the sign for equality, first so used by the Englishman Robert Recorde in 1557. The German Wilhelm (Holtzmann) Xylander used a double vertical line as the sign for equality—but even his compatriots soon switched over to Recorde’s $=$ which could not be mistaken for a Greek capital Π .

The sign for division \div was advocated simultaneously by Johann Henrich Rahn of Zurich and John Pell of London in about 1660. It is still in use in English-speaking countries while the other European countries and the Soviet Union use the simple colon ($:$) as the sign for division. The root sign goes back to Ru-
























	SUN — Gold		MOON — Silver
	MERCURY — Quicksilver		VENUS — Copper
	MARS — Iron		JUPITER — Tin
	SATURN — Lead		URANUS
	NEPTUNE		PLUTO
	EARTH		
	ARIES		LEO
	TAURUS		VIRGO
	GEMINI		LIBRA
	CANCER		SCORPIUS
			SAGITTARIUS
			CAPRICORNUS
			AQUARIUS
			PISCES

Fig. 2. Astronomical and astrological symbols.

dolff in 1526, it is simply a special form of the written r (because of *radix*, Latin for root) just as the integral sign is a special form of the letter s (summa).

Letters having one meaning only are a sub-division of mathematical symbols. In 1728 the Swiss mathematician Leonhard Euler decided to designate the basis of the natural logarithms ($2.718 \dots$) as e . It may be of interest to note that this thought occurred to him while he was thinking of a mathematical description of the processes taking place when a cannon is discharged. Another such definite letter is the i , standing for the square root of minus 1, and, of course, the Greek letter π for the ratio of a circle's circumference to its diameter. The use of π was first suggested by Christian Goldbach in 1742 but gained currency mainly because Euler accepted

this usage in his main work that was printed in 1748.

If you think that the letter *c* (for the velocity of light) is equally exclusive you happen to be wrong. Einstein's use of it in his formula $E=mc^2$ could not do away with all the other uses of *c*. In treatises on aerodynamics it stands for the speed of sound, in works on rocketry it denotes the exhaust velocity and in some meteorological formulas it stands for the wind velocity.

Even an established symbol can acquire a special meaning. Normally the dagger (†) is a reference to a footnote, but in paleontological books it means that the species marked by a dagger is extinct. And in biological works the astrological symbols used for Mars and Venus (we'll get to them in a moment) are used to denote "male" and "female".

The next science where symbols are often used (though far less frequently than in mathematics) is astronomy. The signs, all of them of astrological origin, are not very numerous. (see Fig. 2.) There is one for each planet and there are twelve signs for the twelve constellations of the zodiac. The other constellations, fortunately, have no signs.

Both the signs for the planets and the custom of assigning a

metal to each planet go back to classical antiquity, we can no longer tell who first drew the sign for Venus or who designated copper as the metal to go with that planet. But we can still tell what these symbols represent. The one for Mercury is a stylized drawing of the caduceus, the staff with the two snakes which Mercury carried with him when one of the other gods sent him on a long journey. The symbol for Venus is a hand mirror, vanity is not a recent invention. The symbol for Mars is composed of shield and spear while that for Jupiter is a special form of the letter *Z* (from Zeus). The symbol for Saturn is a stylized hand sickle, for Saturn was the god of agriculture. The symbols for the three planets Uranus, Neptune and Pluto were introduced soon after their discoveries to maintain tradition.



WATER							H ₂ O
GOLD							Au
SILVER							Ag
IRON							Fe
SULPHUR							S
LEAD							Pb
MERCURY							Hg
ARSENIC							As

Fig. 3. The symbols of the alchemists.

Uranus, discovered by Sir William Herschel, is usually designated by the symbol shown in the illustration, but in older books you can find the other symbol, the one incorporating a capital H, standing for Herschel's name. The reason for this symbol is this: after the planet Neptune had been discovered on the basis of the calculations made by the Frenchman Leverrier, Leverrier's superior, D.F.J. Arago, felt that the new planet should be called Planet LeVERRIER. To make this suggestion more palatable to other astronomers he proposed to call Uranus Planet Herschel.

Opposition to this suggestion was virtually unanimous and Leverrier himself quickly voted for Neptune as the name of the new planet. Neptune, of course, got the classical trident as its symbol, and the symbol for Uranus was changed by leaving out the H. Pluto's symbol has a double meaning. PL are the first two letters of the name and they are also the initials of Percival Lowell, who initiated the search that finally (after his death) culminated in the discovery of the planet.

Most of the symbols for the constellations of the zodiac are also ancient, but the stylized versions now in use are fairly recent. During the late Middle

Ages and afterwards artists competed with each other in producing the most elaborate drawings of the animals that they could manage, in fact they are usually so elaborate that one has trouble finding the stars. As regards the derivation of the stylized symbols the interpreter is sometimes on firm ground, but only sometimes.

The first constellation of the zodiac, *Aries* (the Ram) is easy, the symbol is obviously a stylized drawing of a ram's horns. The same goes for the second sign, *Taurus* (The Bull), the symbol is a stylized bull's head. *Gemini* (The Twins) is also simple, it is a Roman II. The fourth sign, *Cancer* (The Crab) presents some difficulties, a French historian of science guessed that it may be the crab's claws.

I feel that I can do a little better, the sign points in two directions and it originated in Europe where the most common representative of these animals is the crayfish. A crayfish, on land, will crawl forward, in water it will go backward and this fact is incorporated in several proverbs. (It is even incorporated in music, during the eighteenth century a melody which sounded the same, whether played from beginning to end, or from end to beginning, was
















				
Platinum	Bismuth	Cobalt	Zinc	Manganese
				
Water	Sulfide of Copper	Chalk	Nitrogen	Arsenic
				
Salt	Alkali	Acid	Regulus	Phlogiston

Fig. 4. The chemical symbols of Olov Bergman.

referred to as a "crabwise melody".)

The next sign, that of *Leo* (the Lion), bears a symbol much used in alchemical writings and called the "dragon's head", but I think that it is simply a capital Greek *lambda*, since the Greek word for lion also starts with an *L* (*leon*). The symbol for *Virgo* (the Virgin) has not been explained, but it could be Christian symbolism since it clearly incorporates the letter *M*, standing for Mary. *Libra* (the Scales) is obviously a simplified drawing of an old-fashioned hand-held pair of scales. The symbol for *Scorpius* (the Scorpion) is unexplained, though the scorpion's tail is evidently part of it. *Sagittarius* (the Archer) is, of course, symbolized by an arrow. The symbol for *Capricornus* (The Goat) defies explanation, unless it is supposed to express the jumps of a mountain goat. (When drawn artistically the animal used to represent Capricor-

nus was usually the ibex of the Alps.) *Aquarius* (the Water Carrier) is neatly symbolized by waves while the symbol for *Pisces* (the Fishes) at least expresses that there is more than one.

And now we come to the science that uses symbols about as extensively as does mathematics: chemistry, where a symbol saying H_2SO_4 (sulphuric acid) is as definite and unequivocal as any mathematical formula.

The predecessors, at least chronologically, of the chemists, the alchemists, just loved to indulge in symbols. Fig. 3 shows a collection of alchemical symbols for some metals and a few common substances. (For Figs. 3, 4 and 5, I am indebted to an article *Development of Chemical Symbols* by Prof. Ingo W. D. Hackh which appeared in *The Scientific Monthly* for March, 1935.) The first vertical row of these symbols is always the astrological sign of the corresponding planet in the case of metals. The symbols for "water" are either waves, the second and third, or downward pointing arrows and triangles (rain) while the things that look like windows may also refer to rain and the necessity for staying indoors. The symbols for arsenic include crosses, triple crosses and a cross

surmounted by a triangle (roof or tombstone) because of its toxicity.

Apparently the first man who tried to bring some system into symbols used for chemical substances was the Swede Olov Bergman (1735-1784). He used the planetary symbols for those metals which traditionally were assigned to a planet, invented new symbols for metals discovered after 1500 (platinum, cobalt, zinc, etc.) and added symbols for concepts such as acid, alkali, regulus and chalx. The latter two terms were based on the then current phlogiston theory which ruled the field until oxygen had not only been discovered but its actions were also understood. When Bergman spoke of the *regulus of silver* he meant the uncombined metal, while *Chalx of mercury* was used to designate what we would now call the oxide of mercury.

By using symbols indicating compounds, Bergman anticipated the chemical formula.

The man who continued this process was John Dalton (1766-1844) who did several things. (see Fig. 5.) Each element was represented by a circle with clear geometrical design, or with a letter, after Dalton had run out of designs that were simple enough not to be confused with others.































HYDROGEN 	IRON 	 HO (H_2O)
NITROGEN 	ZINC 	
CARBON 	COPPER 	 HN (NH_3)
OXYGEN 	LEAD 	
SULPHUR 	SILVER 	 NON (N_2O)
STRONTIUM 	PLATINUM 	
MAGNESIUM 	GOLD 	 HCH (CH_4)
CALCIUM 	 SO_2	 NO_2
SODIUM 	 (H_2SO_4)	 (N_2O_4)
POTASSIUM 		
PHOSPHOR 	 $C_2H_2O_2$ $(C_2H_4O_2)$	 C_6HO_2 $(C_6H_6O_4)$
MERCURY 		
BARIUM 		

Fig. 5. The chemical symbols of John Dalton (1808).

Note that Dalton, in labelling the iron atom I, the silver atom S and the gold atom G used the English and not the Latin names of the metals.













But the important thing was that in Dalton's scheme the circle with a dot in the center no longer meant hydrogen in general. It meant *an atom of hydrogen*, just as in present chemical formulae, here a C also does not mean carbon in general, but very specifically a carbon atom.


By the time Dalton published his *New System of Chemical Philosophy* (1808) the concept of the molecule had not yet been advanced by Amadeo Avogadro, hence Dalton considered that water consisted of one atom of oxygen and one of hydrogen. As can be seen from the illustration

Dalton undertook to picture fairly complicated compounds. That he happened to be wrong more often than he was right is fairly unimportant; mistakes are a customary item in the progress of science and they are valuable items if they, as in Dalton's case, point in the direction of their correction.

One man who did much to correct these early mistakes, Baron Jons Jacob Berzelius, also invented the system of chemical notations which we use today, designating each element by a letter or two letters, since not every name of an element begins with a different letter.


But in this century there was one belated attempt to revive drawn symbols. It originated with a German high-school teacher who held the opinion that such symbols, while not a contribution to chemical science, would contribute to the elementary *teaching* of chemistry. His symbols (Fig. 6) were based on the valence of the elements. Everything that had a valence of 1 took the shape of an arrow, everything with a valence of 2 had two "handles" (like the symbols of beryllium and oxygen), everything with a valence of 3 was triangular and so forth. The illustration shows the first ten elements and a number of simple compounds.

	HYDROGEN	+	CARBON	
	HELIUM		NITROGEN	
	LITHIUM		OXYGEN	
	BERYLLIUM		FLUORINE	
	BORON		NEON	



H_3BO_3

(Boric acid)



HNO_3

(Nitric acid)

Fig. 6. The last attempt to save chemical symbols, ca. 1922.

The criticism levelled immediately against this suggestion was that the symbols could not be pronounced, or rather that, in order to pronounce them, one would have to use the Berzelius notation and that there was, therefore, no need for extra symbols. To that criticism another one can be added, namely that the figures for the compounds would rapidly get so difficult that one would need a long time to find out just what is under discussion. The symbol for H_3BO_3 (shown) is still reasonable, but $\text{H}_2\text{B}_4\text{O}_7$ (tetraboric acid) would already be difficult and I did not even attempt to construct the symbolic picture of beryl, $\text{Be}_3\text{Al}_2(\text{SiO}_3)_6$.

Near the beginning of this column I used a symbol which fitted the discussion but which I failed to explain. It was the \$ sign.

Its origin goes back to 1519 when the Count von Schlick was put in charge of minting operations, using the metal from a then newly discovered and rich silver mine at St. Joachim's Dale in Bohemia. In German this is Joachimsthal and the large shiny silver coins which were made quickly called Joachimsthaler. Then the word was abbreviated into Thaler, which in Low German changed into Daler and from there into Dollar. Soon a Thaler or Daler did not have to come from Joachimsthal anymore to be called that, any silver

coin of about the right size was called a Daler.

Both the name and the coin were widely known when the United States came into being and made a large silver coin, called Dollar, the unit of its monetary system.

But what does that have to do with \$? Well, since the dollar was not exclusively a coin of the United States it had to be referred to as U.S. Dollar in order to avoid misunderstandings. And it is believed that \$ evolved from the letters U.S. superimposed on each other. —WILLY LEY



FORECAST

Robert Sheckley, absent from our pages for all too many years, comes back next issue, and comes back big. The story is *Mindswap*. In it a typical American youth (he's 40) of the 22d century, bored with the humdrum rounds of his existence (camping in the Valley of Ten Thousand Smokes, skiing at the South Pole), seeks adventure out in space, and gets it by exchanging minds with a Martian. Nothing unusual about that . . . but the Martian is a criminal, and what happens to Our Hero thereafter is fast, funny, bright and colorful. It is, in a word, typical Sheckley. It's a complete novel, and we think you're going to put it right up there with *Watchbird*, *The Journey of Joenes* and all the other Sheckley classics.

Willy Ley's column is a beauty, too, dealing with the race to the Moon and its surest prize, an unmatched site for an astronomical observatory. What it would be like, and what we can expect from it, are his themes in next month's *For Your Information* — and we've asked a few first-rate astronomers, including Donald H. Menzel and Robert S. Richardson, to add their own views and comments. We're pleased with the result.

A WOBBLE IN WOCKII FUTURES

*Anybody can get rich quick
speculating in planets—if
they pick the right planet!*

by GORDON R. DICKSON

Illustrated by MORROW

I

"I do trust you!" said Tom Parent.

"You don't! You don't!" said his wife Lucy. "You just say you do but you don't!"

Tom ran the fingers of his right hand in near desperation through his close-cropped brown hair. About them in the lounge of the imperial suite aboard the spaceship descending on the planet Mul'Rahr, four Hugwo lance-gunners stood scattered about like statues at rigid attention. They looked like nothing so much as oversized clams,

equipped with armored legs and arms, their tall lance-guns upright in their grasps.

Luckily, thought Tom, the Hugwos did not understand English, which he and Lucy were talking at the moment. Lucy was blonde and beautiful and he loved her dearly, but—

"I do!" said Tom. "You don't understand. It's like Caesar's wife—the Consort Lucy must be above suspicion. As ambassador to Mul'Rahr, I may have to engage in some pretty active diplomatic trickeries. If you don't know about them, no one can accuse you—" He broke off. A

fifth Hugwo, the corporal in charge of the honor guard of lance-gunners, had just clanked in with a message in code, which he handed to Tom. "Thank you."

"Sir!" shouted the corporal, clanked backwards three paces, saluted with the precision for which these mercenary soldiers were famous, and became rigid. Both he and Tom had spoken the lingua franca of the civilized worlds of the Galactic Federation, to which the human worlds were relative newcomers. Tom scanned the message, translating mentally as he read. He had had the recent codes hypnoed into him before leaving Earth.

"I keep telling you," Tom went on to Lucy in English as he read, "how serious this is. We overextended our human resources when we took over the Jaktal empire"*

"But you took over the Jaktal seat for us among the forty-three great interstellar powers in this sector."** said Lucy, puzzled. "I thought —"

"That gave us political position. But we need economic position," mumbled Tom, as he perused the message. "The Office Upstairs, back on Earth — see how I trust you and tell you

things — decided this could be best gotten by investing in the advantages of future trading agreement with the Wockii, the dominant race on Mul'Rahr. Against my advice, incidentally. It seemed to me there was something fishy —"

"They asked you?" said Lucy.

"Of course," muttered Tom, still decoding as he talked. "After all, I'm the only living individual of the human race who's a member of the Interstellar Assassin's Guild, even if I am only an apprentice and became one by mistake. Because of my apprentice's briefing, I know more about the interstellar situation than any human alive — oh, oh, just as I thought!"

He snapped a pocket locket from his Assassin's weapons harness and hastily disintegrated the message blank.

"What? What did you think? Tell me!" said Lucy.

"I shouldn't," muttered Tom, snapping the locket back into its holster clip.

"You don't trust me!"

"But I will." Tom began to pace worriedly up and down the room, between the statuesque Hugwos, with Lucy following after him. "It's just as I feared. There's been a wobble in Wockii futures on the Interstellar Futurities Exchange. A bad wobble."

* WHO DARES A BULBAR EAT? *Galaxy*, October 1962

** THE FAITHFUL WILF, *Galaxy*, June 1963

"Wobble?" cried Lucy. "Wobble? I don't understand."

"It's not easy for anyone to understand without an Assassin's briefing knowledge," said Tom, frowning. "That's why I warned the Office Upstairs against this."

"What did they do—oops!" said Lucy. Tom had just turned around suddenly and bumped into her.

"Sorry," said Tom. "Well, briefly, there's a sort of interstellar stock exchange in which member races can speculate by buying and selling stock in their own and other races' future wealth and productivity. When we took over the Jaktal empire we took over the Jaktal commitments. In order to back these, the Office Upstairs decided to issue stock in our own human futures—all very good and sound as far as it went. But then, they turned around and wanted to borrow against the credit thus established to purchase the total stock of the futures of the dominant race here on Mul'Rahr, listed as the Wockiis. And I was sent here to endorse the purchase by a trade agreement with the Wockiis personally, even though they haven't reached Interstellar Citizenship level and are administered by the Skikana, who discovered Mul'Rahr."

"But what's wrong with that?"

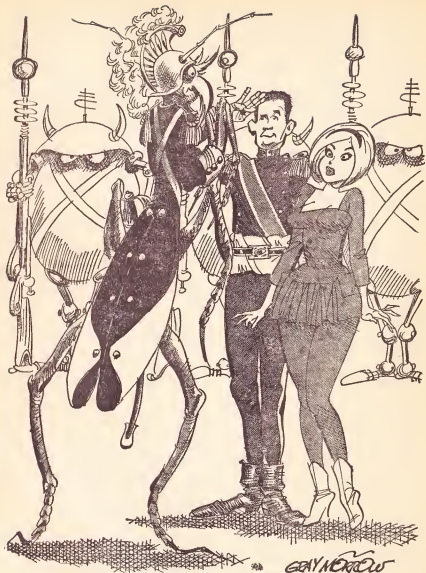
"Both the sixth and seventh of my para-instincts activated by the Assassin's briefings were made suspicious by the availability of those same Wockii futures. My seventh, in particular, was very positive about it. It was all too easy and now we're committed. The endorsing trade agreement is only a formality unless actual chicanery can be proved." He stopped pacing. Lucy stopped too.

"You think there's been chicanery?" Lucy stared at him.

"No doubt of it. But can we prove it?" Tom shook his head worriedly. "That message just told me there's been a sudden drop in the value of Wockii futures on the Interstellar Exchange. In one hour their value dropped fifteen points below the computer-predicted minimum level for the next thousand years. A bad 'wobble' as the Exchange dealers put it."

"Then you mustn't make the trade agreement. That's all," said Lucy firmly.

"I can't avoid it without reason." Tom paused to glance at a screen across the room, which showed a wide expanse of concrete landing pad and a battalion of what looked like six foot tall praying mantises armed and standing strictly at attention. "We're almost down. There's the



A WOBBLE IN WOCKII FUTURES

Skikana honor guard drawn up to greet us. From now on be careful what you say. Even a mountaintop ten miles away has ears. Only in our Ambassadorial quarters —"

The landing bell of the ship rang suddenly through all the rooms, followed by the distant thrumming of what seemed like harp music.

"What's that?" cried Lucy.

"The Skikana battle harps," said Tom. "You'll see them when we go out. They vibrate so powerfully they can be heard right through the hull of the ship. Come on now. We get off first. Protocol—Corporal!"

"Sir!" shouted the Hugwo corporal, springing to life. He rapped out orders in Hugwo and the lance-gunners formed up behind Tom and Lucy and they all marched out of the suite, down the ship's corridor and out through the airlock.

"Be sure not to squint," hissed Tom at Lucy in English as they went. "We're stepping out of the lock into pretty bright sunlight, now. And Skikanas are extremely touchy and proud. They take offense at the slightest provocation."

They marched out and down the landing ramp, Lucy trying valiantly not to squint in spite of the sunlight that made the

whole scene waver through a film of tears. They halted, their heads ringing with the powerful vibrations of the Skikana battle harps, great seven-foot triangular, metal-stringed affairs, each resting on a spike driven deep into the very concrete itself.

". . . And may I also present my consort, the Consort Lucy, Colonel?" Lucy heard Tom saying. She cleared her vision in time to see a six-foot high praying mantis shape leaning stiffly over her.

"H-Honored to meet you, sir," she managed in the sibilant Skikana tongue she and Tom had picked up on the way here.

"Madame!" snapped the Skikana colonel, with a frosty bow. "May you dine on your worst enemy by sundown!"

"Oh, thank you!" said Lucy. "May you dine on yours even sooner than that!" To her surprise she saw Tom frown.

"Madame!" stiffening, the colonel clashed his jaws together almost spasmodically. Oddly, a little froth appeared on them. "I would not presume! We Skikana take no advantages and need none. To dine before the consort of my guest. Skikana manners would not permit!"

"Oh, I didn't mean —" Lucy was beginning. But Tom, with diplomatic smoothness, was already stepping into the breach.

"Happily," he said, "I may inform the Colonel that my consort has already broken her fast, this day."

"May I be the first to congratulate her, then!" said the colonel, relaxing. He relaxed, in fact, quite noticeably, and his gaze came unfocused. He pulled himself together with a jerk and clashed his jaws spasmodically. "Follow me. I will escort you to your quarters."

He led them and their Hugwos on to a waiting flying platform which took off just as the battle harps struck up again.

II

"Oh, my!" said Lucy in English, rubbing her ears when they were safely alone in their ambassadorial suite at the Skikana fort. "What was that they were playing?"

"*None Shall Interrupt Our Feast*," replied Tom. "Hmmm. Did you notice anything odd about the colonel?"

"I couldn't tell," said Lucy, truthfully. "Everything he did and said seemed odd to me. Why were you humming?"

"That song," said Tom, thoughtfully. "The Skikana are so touchy they're liable to give themselves away with anything they do. Something is definitely rotten about the whole business

of Wockii futures. If there was only some way to get out of it—"

"But can't we do that? Just write off our losses?" asked Lucy.

"It would break us," said Tom, solemnly. "Our human worlds would be mortgaged and our future generations placed under a crushing load of financial obligation. If the Wockii futures turn out to be worthless we won't be able to use them as security to meet our commitments while we wait a thousand years for the Wockii to reach a civilized level and begin paying off in export-import agreements with us."

He frowned. "What puzzles me," he said, "is the Skikana. By taking protectorate rights over the Wockii they gave up their right to any direct interest in Wockii futures. So they shouldn't care one way or another about the matter—but obviously they're mixed up in it somehow."

"Can't you get them to give themselves away, somehow?" asked Lucy. "Betray themselves, I mean?"

"A very good idea," said Tom, thoughtfully.

He stepped across the room to a communications screen, and pressed the buttons at its base. A second later the face of the Skikana colonel appeared on the screen.

"Sir Ambassador!" said the

colonel and champed his jaws. "In what may I serve you?"

"You may supply me with an escort, my dear Colonel," said Tom. "I, with my Hugwos and the Consort Lucy will start for Wockiiland, immediately."

The colonel stared out of the screen blankly at him for a moment.

"But sir Ambassador," the Skikana said, "it has been arranged for the Wockii chiefs to come to the fort, here."

"No doubt. However," said Tom, with diplomatic steeliness in his tones, "I have concluded that it is of the utmost importance for me to contact—" he bent a severe glance upon the colonel in the screen—"the dominant race of Mul'Rahr, immediately."

"Sir!" The colonel's jaws champed. "A banquet has been ordered."

"We shall appear at the banquet, but leave immediately afterwards. Good day," said Tom, and cut the connection.

Immediately afterwards, however, he activated the screen again, this time with a view outside the fort gate looking backwards into the wooded hills of the wild native countryside, toward Wockiiland.

"What are you looking for?" asked Lucy, after a moment.

"Watch. Wait," said Tom, without turning his head. Lucy watched. After a moment or two, a platoon of Skikana soldiers, mounted on individual flying platforms, left the gate and skimmed with haste toward the hills.

"The pot," said Tom to Lucy, "is starting to boil. Clearly for some reason the Skikana want to warn the Wockii's against my coming. Why? There must be something in Wockiiland they don't want me to see."

The doors to their quarters gave forth a mellow chime, interrupting him. A second later the Hugwo corporal returned from answering it leading a Skikana captain of Regulars, lean and hard-bitten, but just at the moment with unfocused eyes.

"Bells . . ." murmured the captain, dazedly.

"Sir!" shouted the Hugwo corporal to Tom, and the captain came to. "Visitor to speak with the Ambassador, sir!"

He saluted and stepped back. The captain bowed to Tom and Lucy.

"Sir," he said. "I am Captain Jabat of the 8th Skikana here at Fort Duhnderhef. Possibly you notice the medals on my prothorax?"

"Indeed," said Tom, his eyes narrowing.

"They are poor things, no

doubt, in the eyes of an Assassin," said Jabat, bowing gracefully. "Nevertheless, I must confess to a nodule of pride in the medal on the far right. You see it there?"

"Ah, yes," said Tom.

"I received it," went on Jabat, "on winning the championship of the quick-draw-kill-and-devour, of the Skikana handgun competition at the last All-Skikana Worlds Games. As an Assassin, of course you are familiar with the Skikana handgunning art?"

"Of course," said Tom.

"Then, for the pride of the 8th Skikana here at the fort," said Jabat, "may I ask you to accept this small offering?"

He produced a tiny gold whistle from his weapons harness and blew it. A Skikana enlisted soldier marched in bearing a silver dish with a cover which he placed on a small table at Tom's right.

Bowing, both Skikanan withdrew.

"They didn't waste any time," said Tom, as the door closed behind the two. He gazed with slitted eyes at the dish. "Develishly subtle, these Skikana."

"What did he give you?" inquired Lucy, lifting the cover of the dish. "Oh —"

"Don't touch it!" said Tom, quickly.

Lucy had revealed a beautiful competition model Skikana handgun. "If a human hand touches it, a signal will go off on the 8th Skikana bulletin board, and I'll have accepted the challenge."

"Challenge?" Lucy jerked her hand back from the gun. "Tom! And he's a champion! They're trying to kill you!"

"Nothing so crude, unfortunately," said Tom. "What they must be planning is to discredit me. As an Assassin, they expect me to make short work of Jabat in the duel. However, having killed him, I must finish off the matter by ceremoniously eating every bit of him. It's the final tribute to a fallen foe, according to the Skikana code duello. They've undoubtedly checked up and found that we humans haven't the incredible Skikana capacity for food — even if Skikana were edible by human standards."

He looked thoughtful.

"If I refuse to eat him," Tom said, "they undoubtedly plan a protest that will get me removed as ambassador. And no other human has my qualifications to see through what's going on here."

"Don't kill him, then," urged Lucy. "Just — just scratch him."

"I'm not sure I can," said Tom, solemnly. "You forget. I've had the briefing, but I lack the years of intensive physical training that makes an Assassin. The Skikana don't know it, but their champion can almost undoubtedly take me. I'll be dead before I can clear the handgun from its clip on my harness."

"Tom!" Lucy's face was horrified. "Don't you fight him! Don't you fight him at all!"

"An Assassin back away from a challenge? Impossible," said Tom. "The Assassin's Guild themselves would eliminate me if I did such a thing."

"Can't you just tell him, some other time?" Lucy almost wrung her hands. "Be polite, but firm?"

"No," said Tom, sadly. "After all, whole armies have been known to mutiny and refuse to advance when they heard that a single Assassin barred their path." He sighed, heavily. "Well, maybe I can think of something. We better get going to the banquet."

III

Surrounded by their Hugwos, they left the suite, and were guided by an officer posted outside their door down a corridor and into a vast, hall-like room with a lofty, raftered roof and no windows except narrow slits

up near the rafters at the top of the walls. These windows were set ajar, however, to the warm, sunset air of Mul'Rahr. Inside the hall great ceremonial torches eight feet tall flared and danced their flames above the long tables at which the Skikana officers sat. Wide circular platters of polished wood sat before each diner or empty chair. And enormous toadstools like logs of wood gave up a savory smell like roast beef as they lay at length on the tables between rows of plates.

The Hugwo corporal conducted Tom and Lucy to seats at the left of the Skikana colonel.

"You have met our brave Captain Jabat?" inquired the colonel, as soon as the two humans were seated.

"I have indeed," replied Tom.

"Even among we Skikana his courage is proverbial," said the colonel. "He . . ." his gaze wandered and his voice trailed off.

"Colonel!" prompted Lucy, kindheartedly.

The colonel started, forked a bite of toadstool into his mouth, gulped it down and came alert again. ". . . Ah, yes," he said significantly, looking at Tom. "It is courage not even to be despised by an . . . Assassin, shall we say?" Lucy caught her breath.

"We shall, to be sure," said Tom smoothly. "But work before

pleasure, my dear Colonel. The Wockii concern me at the moment."

The colonel inclined his head and signaled to a Skikana enlisted soldier, who stepped forward to carve slices from the nearest huge toadstool. He served the slices on the platters before Tom and Lucy. Lucy sniffed obtrusively at hers. The aroma was delicious.

"Is it safe for us to eat?" she whispered in English to Tom.

"I'll check," whispered back Tom. The colonel's attention was momentarily devoted to finishing his own slice and ordering another with typical Skikana voracity. Tom produced a small handbook and thumbed through it. "Let's see . . . '*Mul'Rahr . . . toadstooloids of, large . . . Agarica Mul'Rahrens is Gigantica, page one hundred and forty-three . . .*' Here it is . . . '*See Rhu, page one-thirty-eight . . .*'" he flipped pages. "*'Rhu, a wide-spread root system often extending over miles underground, putting forth root and tuberoso projections of many varieties and types' . . .*" Tom's voice trailed off. "Hmm . . ." he muttered, "interesting . . ."

"But can we eat it?" demanded Lucy.

"Oh!" Tom started, almost after the fashion of the colonel. "Yes, I think so . . . '*edible for*

the following races . . . Adjarts, Allahns, . . . uh, Hssoids, Hytszs . . .' Yes, here we are . . . '*Humans*'."

"Oh, good, said Lucy, "it smells so appetizing —"

A twang from high above interrupted her, followed by an approaching high-pitched drone and ending in a thud. A small black arrow quivered in the center of Lucy's slice of toadstooloid, pinning it to the wooden platter. Shocked silence filled the hall and all eyes turned upward to discover a three-foot high, faunlike figure covered with white woolly hair and with a lamblike face. This figure stood perched on one of the rafters by an open window, now reslinging a small bow over its shoulder and drawing an eighteen-inch sword.

"What — what is it?" gasped Lucy, unthinkingly in English.

"A Flal," answered Tom, swiftly in the same language. "supposed to be one of the semi-intelligent local life forms —"

The rest of his sentence was drowned out by a bellow.

"A Flal!" the colonel was roaring, starting to his feet and tugging at the ceremonial sword that was the only weapon the Skikana officers had worn to the banquet. "Get it down from there! Get it down, I say!"

With a sudden, fantastic leap, the Flal left the rafter high overhead and landed on the table before the colonel. In a twinkling, the Flal's midget sword was menacing the colonel's prothorax and an imperious whistle burst from the Flal's lamblike lips.

"Cut it down! That's an order!" thundered the colonel to his officers. "Never mind me!" But the officers hesitated.

Taking advantage of this hesitation, the Flal turned and directed a stream of angry, musical whistling at Tom, gesturing with its free hand at the nearest toilstooloid. Then the Skikana officers dashed forward and the Flal, releasing the colonel, dodged away, ducking into the sea of three-foot long, flashing Skikana swords, twisting, swivel-hipping and dancing on black hooves as his own tiny blade, glittering with a speed of reflex the Skikana could not match, fenced a way for him to the nearest torch stand.

A leap carried him to the top of the stand. From there, disdainful of the licking flame, another leap carried him to crenellations in the wall and from there to a rafter leading to an open window. At the window he turned about, and, whipping a miniature hunting horn from his belt, he paused to blow a blast

like some small, elfin bronx cheer at those below. The Skikana soldiery howled in baffled fury, waving their weapons. Then the Flal had ducked through the window and was gone.

"Sir Ambassador! Consort Lucy!" said the colonel, gnashing his jaws but sheathing his sword and getting himself back under control—he paused to gulp a half-slice of toilstooloid—"please be seated. Forgive this minor interruption. These local life forms—mere semi-intelligent animals—not even a language, just whistle to show their emotional state—please put it out of your mind. My soldiers will see that the banquet is not interrupted again."

"That won't be necessary, colonel," said Tom. "I promised only to put in an appearance at this banquet and I consider that promise fulfilled now. I, my Consort, and my Hugwos will make use of that escort I asked you for, to leave for Wockiiland immediately."

"Of—of course!" said the colonel, getting himself under control. "If you wish it, sir Ambassador. The escort is provided. However—" he hesitated. "I cannot permit the Consort Lucy to risk a night journey through the Mul'Rahrian wilds. You and the Hugwos, of course, but—"

"Sir!" Tom's voice snapped him off in mid-speech. "Are you presuming to tell me where to take my Consort?"

"I have a duty," said the colonel stiffly, "as local commander to protect civilians —"

"May I remind the colonel?" Tom's words cut like a knife. Lucy looked at him in admiration. "That the Consort Lucy will have an Assassin to escort her?"

"Sir!" said the colonel, stiffening in his turn. "Am I to infer a lack of trust in my soldiers and myself."

"Certainly not," said Tom, without hesitation, and Lucy beamed at him for his quick thinking. It was perfectly clear that if Tom had expressed a lack of trust in the Skikana, the colonel would have had grounds for a protest to get Tom removed as ambassador. "I trust you and your officers and men implicitly, Colonel. It is the Consort Lucy I don't trust."

Lucy gasped.

"You don't —" the colonel's naturally bulging eyes seemed to bulge farther, "—trust your consort, sir Ambassador?"

"Not out of my sight for a moment," said Tom, firmly. "A purely human situation, Colonel. I'm sure you wouldn't be interested in the details. And now, the escort?"



"It's already waiting for you at the west gate," said the colonel, stiffly. Gnashing his jaws in defeat, he stepped back and allowed them both to proceed by him followed by their Hugwos.

IV

Fifteen minutes later, they floated westward on flying platforms over the rolling semi-wooded landscape of Mul'Rahr under the enormous single moon that made the night seem almost as bright as day. Tom and Lucy were sharing a platform, with their faithful Hugwos riding individual platforms before and behind them. Beyond and behind the Hugwos were half a dozen platform mounted soldiers of the Skikana escort, none of whom seemed close enough to be in earshot. Tom lowered his voice and spoke to Lucy in English.

"Lucy —" he began.

"Don't speak to me," said Lucy, staring off in the opposite direction at the shadowy woods. "Do not speak to me! I would appreciate it!"

"Now Lucy —" said Tom.

"If you please," said Lucy. "There is nothing for us to discuss. Nothing at all."

"Don't you understand?" pleaded Tom. "The colonel wanted you as a hostage. I couldn't leave you in his hands. I had to

say the first thing that came into my head!"

"No doubt," said Lucy. "It was very clever of you. Curious, is it not, though, that you should make use of the fact that I am untrustworthy? I do not wish to make a point of this," went on Lucy in syllables resembling splinters of jagged ice. "It merely crossed my mind. In passing, so to speak."

"Lucy, I do trust you. You know I do!"

"How bright the moonlight is upon this world," said Lucy, splintering a little more ice.

They rode in silence for the following forty minutes or so, at the end of which Tom tried again.

"Lucy —" he began. He broke off suddenly as he caught sight of the officer in charge of their escort whipping his flying platform about and zipping back toward the one Tom and Lucy occupied. "Yes, Captain?" asked Tom, as the officer swung about and flew alongside.

It was Captain Jabat. The moonlight glittered in his black eyes in what Lucy, at least, could not help but feel was a very sinister fashion.

"Sir," said the captain to Tom. "We approach the Wockii chiefs now. We should meet them in the next few seconds."

"Excellent. Tell me, Captain,"

said Tom, thoughtfully. "Just as a matter of interest, was it a case of your original Skikana scoutship seeking out the Wockii, when they discovered Mul'Rahr? Or did the Wockii come forth on their own initiative to make friends with the scoutship?"

"The Wockii came forth on their own, sir," said Jabat. "We consider it a tribute to our Skikana approachability, and honor. The Skikana honor is without stain. None may accuse us of being merciful in victory or resentful in defeat."

"To be sure," said Tom. "However, aside from that — would you tell me if the Wockii are a particularly truthful race?"

"Hardly, my dear sir," Jabat gave the low rasp of Skikana laughter. "We have a little saying at Fort Duhnderhef. *The only Wockii that don't lie are the dead Wockii, and even they lie about being dead.*" Jabat rasped again. "You follow the joke, sir Ambassador and Consort Lucy? See, the Wockii lie when they're alive, and when they're flat on the ground, dead."

"Very humorous, Captain," interrupted Tom. "Very humorous indeed. But isn't that the Wockii Chiefs I see approaching now?"

Jabat turned and looked up toward the head of the column.

"You are right, sir Ambassador," he said. And, whipping his platform about, he shot off to meet the group that was approaching on foot in the moonlight.

In a moment the two parties had come together. The Wockii stood about nine-feet high. They looked something like enormous badgers with curved short tusks. They wore heavy, six-foot cutlasses but nothing else except ribbons tied about their tusks.

"Sir Assassin," said Captain Jabat, presenting these hulking figures to the platform on which Tom and Lucy rode, "and Consort Lucy, may I introduce Hlugar, Chief of Chiefs for the Wockii."

Captain Jabat had spoken in Wockii, which Tom and Lucy had also learned by briefing machine on the way to Mul'Rahr, as they had learned the Skikana tongue.

"All hail, Hlugar!" said Tom, in Wockii.

"All hail, foreigner!" grunted Hlugar in a deep bass voice that seemed to shake the bones of the two humans. "Welcome to Wockiiland. My burrow is your burrow."

"And my burrow is your burrow. Let us go feast this happy occasion." In a shrewd tone of voice he added, much to Lucy's astonishment, "What shall we

feast on? Perhaps — some roasted Flals?"

Hlugar's bass bellow split the moonlight of the Mul'Rahrian night.

"Never!" he roared, dropping on all fours and beginning to dig frantically in the dirt before him. "Never eat Flals! Never, you hear?" He thrust his tusked muzzle down into the hole he had dug, roaring muffledly—"Never!"

"Sir—" began Jabat, in an outburst of indignation. But before he could continue, sudden bedlam broke loose.

Shrill whistles sounded from the tree shadows on all sides of them. Small black arrows began to drone among them. The booming bellows of the Wockii mingled with the harsh battle commands of the Skikana.

There was a swirl of motion and little faun-like, hooved figures with gleaming swords were all about them. Before Tom and Lucy could move, something like heavy cloths fell over their heads. They felt themselves picked up and carried off at a run.

It was useless to struggle. They were carried for some distance and gradually Lucy felt her senses slipping away from her. The cloth or whatever heavy material it was that was wrapped around her seemed to give off a pleasant, faint perfume with

an anesthetic effect. She roused herself to struggle against it, but it was too late. She drifted off into unconsciousness.

When she opened her eyes again, she was lying on the slope of a pleasant, grassy hillside. Dawn had just broken and the bright yellow sun of Mul'Rahr was rising in the blue sky directly ahead of her. A little distance off stood Tom, facing some armed Flals. Surprisingly, only a dozen feet or so away, the faithful Hugwos stood at attention, lance-guns in hand.

"... It's no use," Lucy heard Tom saying to the Flals. "I can't understand a meaning-symbol you whistle." He was speaking in Wockii, Lucy noted drowsily. She remembered that she was mad at him for some reason, but she felt so pleasant that she could not at the moment recall what she was supposed to be mad at him about.

"Tom!" she cried faintly, trying to sit up. Tom turned, saw her stirring and hurried over.

"I didn't know you were awake," he said, helping her to her feet. "You feel fine, don't you?"

"As a matter of fact, yes," said Lucy, bewildered. "I do." She got to her feet. "But what—"

"That was the veil, or under-membrane of the Rhu toad-

stooloid — *Agarica Mul'Rahrensis Gigantica*, the one they served us for dinner at the fort," said Tom. "It appears to have slight narcotic as well as excellent analgesic and tranquilizing properties. But never mind that now. I'm finally beginning to get the general picture of the situation here on Mul'Rahr, and it's more desperate than I thought. Ordinarily as the consort of an ambassador, you'd be safe trusting in the Skikana sense of honor. But the Skikana here on Mul'Rahr, as I suspected when the colonel tried to hold you back as a hostage, are no longer to be trusted. They're planning actual genocide — but there's no time to go into that now. Do you have your consort's credentials with you?"

"Of course," said Lucy, surprised, reaching down into the small belt-purse of her dress. "You told me never to go anywhere without them. I keep them right in — yes, here they are."

"Good!" said Tom, plucking the papers out of her fingers. He whipped a stylus out of its holster on his weapons harness and scribbled rapidly on the margin of the topmost paper. He folded the papers and thrust them back at Lucy. "Put those back into your purse, there —" Lucy obeyed, as he went on. "If

you hear that anything's happened to me, you contact the nearest representative of the Assassins' Guild and show them what I've written. And —"

"Happen to you!" cried Lucy, her fingers freezing on the snap of the purse, which she had just reclosed. "What do you mean happen to you? What do you mean if I hear —"

"I'm sending you directly back to the landing field and the spaceship we came in on," said Tom. "Now don't argue —"

"I won't argue!" burst out Lucy. "I just won't go! You can't make me! I'm not going to leave you!"

"Yes, you are," said Tom, urgently. "The Hugwos will see you safely back to the landing field."

A sharp whistle from the group of Flals interrupted him. He looked over at the small hooved figures and groaned.

"Too late," he said. "I'll just have to hope that the Skikana have enough sense left to spare you when they attack. Come along, I've got to get back to these Flals."

"But attack? Why should the Skikana attack?" asked Lucy, bewilderedly, following him back toward the Flals.

"Because this spot here is the place the Skikana have been searching for ever since they dis-

covered the Wockii had lied to them about being the dominant intelligent race on Mul'Rahr. For the same reason the Flals kidnapped us and brought us here to help them."

"But why do you have to be the one to help them?" wailed Lucy. "Why can't you leave? Then I'd go with you."

"For me," said Tom, solemnly. "There's no choice. The galaxy knows that no Assassin could ever be kidnapped without his permitting it. You can't kidnap an Assassin. Kill one, yes, if you have sufficient battle-hardened troops and mobile armor. The only conclusion that can be drawn is that I allowed myself to be kidnapped by the Flals out of cowardice, in an attempt to avoid facing up to Jabat's challenge—unless I can get to the bottom of things here and clear myself by showing what I was really trying to do."

"But . . . but, I don't understand—"

Lucy broke off helplessly, staring at him as they stopped before the small group of Flals. Those small individuals were now looking up at Tom and Lucy inquiringly. Their little pink noses, furry faces, and kindly brown eyes were lit up by the golden rays of the rising sun.

"I'm not completely sure I do,

either," said Tom. "I'm using my para-instincts and playing by ear as I go. These Flals have a high nobility-of-character index. My para-instincts assure me of that. But since their language, and they really do have one, is musico-emotional in base, I can't understand the explanations they've been trying to give me. It's as if they see the universe around them in terms of varying degrees of right or wrong and define those degrees in musical terms to make up their language."

"Oh," said Lucy, looking at them with a softening glance, and remembering the single Flal in the banquet hall fighting off all the Skikana officers. "And they're such brave little beings, too."

"That's true, they are. And," said Tom, "because of their natures, able to read the characters of others at a glance. They were able to sense, as a result, right from the start that we and the Hugwos are honorable. Just as they sensed from the beginning that the Skikana are cruel and rapacious; and they've always known, of course, that the Wockii were brutal and greedy."

"But if they want you to help them, but can't tell you—" Lucy was beginning, when a whistle from the closest Flal interrupted her. Tom turned to the Flal and

whistled the first few bars of Mendelssohn's *Wedding March*. The Flal turned to Lucy and bowed politely.

"Why!" cried Lucy, delighted. "You can, too, talk to them!"

"Only after a fashion," answered Tom. "I was trying to tell him that you're my wife. Of course they've always said music was the universal language. But that's an oversimplification. In this case the concept of 'wife' probably missed him completely, in spite of the fact that the Flals, like us are bisexual. What he probably got were just some of the emotional overtones of our relationship."

"But you could work out a language from that sort of thing, couldn't you?" inquired Lucy.

"In time. But time is just what we don't have —" A silvery Flal horn sounded off among the giant toadstooloids and the trees at the base of the slope they stood on. A second later, another sounded from the far side of the hill. "There come the Wockii and the Skikana. Just as I'd hoped."

"Just as you'd hoped?" Lucy stared at him.

"Yes," said Tom. "I particularly need those Skikana battle harps." He turned to the Flals and made pounding motions in the air with his fist. "Try the drum again," he said in Wockii.

The group parted and just beyond them Lucy saw what seemed to be a drum mounted on a stake driven down into the earth. Two Flals began to beat the drum vigorously. It did not sound so loud in the air, but Lucy could feel the vibration of it through the ground at her feet. A sudden new chorus of whistles broke out below the slope. They all turned around and saw the first line of armed Skikana infantry march into view and pause at the foot of the slope. Mixed in among them were heavy Wockii figures carrying their mighty cutlasses in hairy fists. The Flals drew their swords.

A strange sound vibrated all about the scene.

"What was that?" cried Lucy. "It sounded like a yawn!"

But Tom's attention was directed down the hill towards the Skikana battle harpsmen, who were emerging from the trees in front of the troops and driving the supporting spikes of their harps into the earth so that the harps stood upright, ready to play. The Skikana colonel emerged into view, with Captain Jabat marching correctly at his left and half a pace to his rear. Together and alone, they marched up the hill toward Tom, Lucy and the Flal leaders. Halfway up the slope the colonel said something

to Jabat, who stopped and held his position midway there between the forces of the Wockii and the Skikana.

He came on up the slope and halted before Tom.

V

“Sir!” he said stiffly. He stood for a second, champing his jaws a little uncertainly as if he was having trouble remembering what he was going to say. “I must ask you to use your influence with these Flals to cause them to surrender themselves so that we may dig up this area to discover goods reported stolen from our fort. Do not think of resistance, please. Your case is hope—What was that?”

“Another yawn,” said Lucy.

“Nonsense!” snapped the colonel, sharply. Then, getting his voice under control, he gave a curt bow of apology in Lucy’s direction. “—As I was saying, resistance would be useless. Your position on this slope is hopeless.”

“Permit me,” said Tom, “to disagree with you, sir. The Flals, as your Skikana have cause to know, are not unworthy fighters in spite of their small size. All the galaxy knows the reputation of the Hugwo lance-gunners. And, last but not least, I am myself an Assassin.”

“True,” said the colonel, champing his jaws convulsively once more. “However, I must inform you that your recent actions in allowing yourself to be kidnapped by these Flals, here, have cast some grave doubts in our mind on your status as a true Assassin. No doubt they are groundless —”

“No doubt,” said Tom. “And no doubt I am mistaken in my conjecture that the supply of unharvested toadstooloid is rapidly approaching the vanishing point?”

The colonel staggered visibly, but pulled himself erect once more.

“There’s plenty of toadstooloid!” he snapped.

“Plenty,” said Tom in steely tones, “for the native Flal and Wockii populations. After all the ecology was balanced that way. But not enough for these and a regiment of Skikana soldiery, when each soldier was capable of eating his own weight or more of food at a sitting. And moreover, once the effect of the toadstooloid upon the Skikana eaters became known —”

“Stop!” shouted the colonel. “Assassin or not, I warn you. There are some secrets not meant to be uncovered.”

“The secret,” said Tom, unflinchingly, “has already been uncovered. It began when who-

ever was fronting for you Skikana in the purchase of Wockii futures realized that those futures were worthless and made them available on such attractive terms that my human government snapped them up. This forced you to a situation where you had to seek out the true dominant intelligence of Mul'Rahr and destroy it."

"Not true!" snapped the colonel, frothing slightly at the jaws. "A pack of lies! The Flals are not intelligent! And no normal civilized race would dare the crime of genocide, even if —"

"The Flals are intelligent," said Tom, relentlessly. "You found out the Wockii had lied to you about that shortly after you established your administration here on Mul'Rahr."

"Lies!" roared the colonel. "If that were true, we'd have made an agreement with the Flals at once, rather than risk prosecution as a race violating Interstellar agreement. Why didn't we?"

"For the same reason," said Tom, "that you Skikana stationed here could contemplate the crime of genocide. You were not normal any longer. You —"

"Stop!" champed the colonel.

"No," said Tom. "It's too late to hide the truth. *Agarica Mul'Rahrensis Gigantica*, or the local



GRAY MORROW

edible giant toadstooloid on which you, like the Wockii and the Flals, have been feeding is not dissimilar to the *Agaricus muscarius*, or fly agaric, one of the poisonous mushrooms of my own world." Lucy gasped, but Tom went on without paying any attention to her. "*Mul'Rahrensis* produces a derivative of the alkaloid muscarine. Which, however, acts not so much as a poison but as a narcotic, a tranquilizer and a euphoric. Taken in the small amounts of toadstooloid, a Flal, or even a Wockii individual, is capable of consuming at one time, the toadstooloid is merely a mild and harmless intoxicating food —"

"Stop!" said the colonel, his voice cracking in a very un-Skikana-like way.

"But," continued Tom relentlessly, "taken in the enormous quantities in which the smallest Skikana soldier can consume at a sitting, the toadstooloid becomes a powerful, habit-forming drug. A drug that the addict will go to any lengths to obtain and which no intelligent, civilized being would allow another intelligent being to consume —"

"Very well," said the colonel. He had pulled himself together, and there was something almost sad in his voice. "You would not let me stop you.

Now you've sealed your own fate." He turned and bowed to Lucy. "I regret, Consort Lucy," he said, "that you must be included with the rest. No human, Hugwo or Flal must leave this spot alive." He looked back sadly at Tom. "Didn't you realize that addicted soldiers like my troops would stop at nothing once our secret was out? Death means nothing to us, compared to being cut off from our toadstooloid supply. You are doomed once I give the word for the battle harps to sound the attack."

"Not at all," said Tom. "Sound them, and find out."

The colonel stared at him.

"Sir!" he said. "You wish me to sound the battle harps for the attack upon you?"

"T-Tom . . ." began Lucy, timidly. "After all —"

"Quiet, Lucy!" said Tom. "I know what I'm doing. Go ahead!" he snapped at the colonel. "Sound the harps. I *defy* you!"

"Defy me?" In a sudden typical, towering Skikana rage, the colonel spun about and shouted down the hill to Captain Jabat. "Sound the Harps! Prepare to advance!"

Up on the slope they all saw the captain salute and turn. His voice floated faintly back to them as he shouted down to the battle harpsmen of the Skikana.

"Sound the Prepare to Advance!" they heard him call. *"Shortly We Shall Eat You. Now!"*

The battle harps broke suddenly into their air-rending, ground-shaking melody. The colonel spun back and shouted thinly above their unbelievable harmonies.

"You've asked for it!" he cried. "No quarter! No prisoners and no —"

His voice caught in his throat. The ground had suddenly heaved up alongside him and the cap of a toadstooloid six feet across poked itself above ground. Abruptly it split apart into two enormous lips and the aperture between them inhaled with a gust that almost sucked them all off their feet.

"What's going on up here?" boomed forth a voice from the lips in accentless Wockii, and with such volume that it overrode even the harp music. Downslope the amazed and aghast harpsmen fell into jangling discordancies and thence into silence. In the quiet that followed a smaller toadstooloid poked itself above ground, grew upwards suddenly to about ten feet in height of stalk, and bent its cap toward the colonel. The surface of the cap drew back to reveal half a dozen large eyes. "Who're you?"

"Colonel, commanding . . . 8th Skikana . . ." mumbled the colonel, obviously badly shaken but trying valiantly to pull himself up in military fashion. The toadstooloid with the eyes swiveled toward Tom and Lucy, twisted toward the Hugwos, turned toward the Flals and at last looked down toward the distant ranks of the Wockii and the Skikana.

"I am the Prar'Rhu — or Pro-to-Rhu of the Rhu root system here on Mal'Rahr, as you strangers would doubtless put it," announced the toadstooloid lips booming. "Children, children! Can't I take even a little nine thousand year nap without your getting into trouble? What is it this time?"

One of the Flals stepped forward and began to whistle rapidly, gesturing at the Wockii and the colonel. The eyed toadstooloid, which had been watching the Flal, swiveled again toward the distant Wockii.

"For shame!" boomed the enormous lips. The Wockii all immediately prostrated themselves. Tom stepped forward to the toadstooloid with the eyes.

"Excuse me," he said, "but might I inquire of you what the relation happens to be — of mass to energy?"

"Not at all. A simple question!" boomed the toadstooloid.

"As anyone who has devoted even a few millenia of thought to the question must realize at once, $e=mc^2$. Or, energy equals mass times the constant, squared—in the present and immediate universe only, of course. I assume you were asking about the relation as it exists merely in the present and immediate universe?"

"I was," said Tom.

"Excellent," boomed the Prar'Rhu. "Because the relationship becomes somewhat more complicated when we consider an infinite series of parallel universes in an enfolded hyperspace. Are you planning to make use of the relationship in immediate, practical nuclear terms, may I ask? Because, if so, I should perhaps warn you of certain explosive results . . ."

"No," said Tom. "I asked the question only as a preliminary to introducing you to myself and to a whole galaxy of different, intelligent and educated races capable of conversing with you on a civilized level."

"A whole . . ." the lips broke off, trembling slightly with emotion. "You say, intelligent, educated races capable of conversing . . ." The Prar'Rhu was clearly unable to continue. Its half-dozen eyes on the taller toadstooloid blinked rapidly.

"I mean just that," said Tom, sympathetically. "Your hundreds of thousands of years of loneliness are over. No longer will you need to take ten-thousand-year naps to escape unbearable and sanity-threatening boredom. No more will you be forced to exist only in the society of your intellectual inferiors. At last you will be able to communicate with minds the equal in capacity and accumulated wisdom with your own —"

"*Never!*" screamed the Skikana colonel, frothing at the jaws. He turned around and roared down the slope at Jabat. "Never mind the Prepare to Advance! Never mind the Advance! Sound the Charge! *Now!*"

Jabat wheeled about to repeat the order.

"You shall not!" thundered the toadstooloid lips. And barely had the thunder of that voice died away on the surrounding slopes and hills when hundreds of thousands of little purple puffballs began to sprout around the feet of the Skikana soldiery and an enticing, spicy fragrance filled the air.

With wild cries, the Skikana soldiers threw aside their harps and weapons and fell upon the purple puffballs, cramming them into their jaws and passing quickly into a foolishly grinning stupor.

"No!" cried the colonel, staggering, torn between his military pride and the odor of the puffballs that had sprouted at his feet. "Get up . . . Charge! Get up, I say!" He was almost weeping. "Get up and fi . . ." The scent of the puffballs overcame him. He collapsed on the ground and tore into those within arm's reach like a starving man.

VI

"But what's going to happen to the Skikana soldiers now?" asked Lucy, as they strolled from the edge of the concrete landing pad out toward their spaceship, some six hours later. The Skikana soldiery, including the officers and the colonel, had escorted them back to the fort, marching as if hypnotized by the orders of the Prar'Rhu. "They're addicted to the toadstooloid, now, and —"

"No more," said Tom. "When I was in the fort just now, I found that the fort kitchens had, of course, whipped up a large meal of toadstooloid, as was customary for the returning troops. However, to a soldier, the Skikana turned their heads away weakly and couldn't stand the sight of the food. They ate imported Skikana battle rations instead."

"The Prar'Rhu put something

in the little purple puffballs to cure them?" asked Lucy. She peered ahead. In the brilliant sunlight the shadow at the base of the spaceship was almost too dark to see into, but she thought she saw several Skikana figures waiting by the airlock ramp.

"Yes. The colonel realized that," said Tom. "That's why he asked to see me before we left. He offered to make a clean breast of the facts here for Interstellar publication, if I would help explain to Interstellar Court that the original addiction wasn't the fault of the Skikana — which it wasn't. Actually, it was an accident having to do with the Skikana capacity for food — what's the matter?"

"Tom!" Lucy clutched at his arm. "Isn't that Captain Jabat and a couple of other Skikana officers waiting for us at the ship?"

"What? Oh, yes," said Tom. "I was expecting him." He called ahead in Skikana. "Good afternoon, Captain!"

"Good afternoon, sir Ambassador!" replied Jabat, stiffly as Tom and Lucy came up into the shadow at the foot of the ship. "I believe that before you leave we have some little matter to discuss."

Lucy's heart sank. Abruptly, she remembered the competition model Skikana handgun which

had been brought to Tom in the fort, earlier.

"Ah, yes," Tom was saying easily. "Do you have it with you?"

"Right here, sir!" said Jabat. Another Skikana officer stepped forward with the dish containing the handgun. The handgun's twin, Lucy saw, was clipped to Jabat's harness, waiting.

"Tom!" she cried urgently in English. "Don't touch it!"

"Certainly, my dear," said Tom in Skikana, as if she had merely been encouraging him. "It will be a pleasure to encounter the prospect of being handgunned and devoured by such an eminent opponent as Captain Jabat." In English he added hastily. "Stop worrying, Lucy! He must be an excellent shot, or he wouldn't have won that medal!"

Tom took the handgun as Lucy gave vent to a stifled shriek.

"Don't!" wailed Lucy in English. "Do you think I want you killed and d-devoured? Even by an excellent shot? Tom, come back!"

Tom was already moving off with Jabat and the other Skikana to place themselves for the duel. "Tom, don't you go get yourself handgunned! You said yourself he was bound to be fast-

er on the draw than you are! What's the matter? Have you gone crazy?"

"Not at all," called Tom, who had now taken up his position, facing Jabat, and was waiting for the signal to fire. "It doesn't matter if he can outdraw me if he misses me, does it? Stay there. I'll be right back."

"But you said he was an excellent shot—" the words froze on Lucy's lips as the presiding officer gave the command to fire. Jabat's reflexes were too fast for Lucy's eye to follow. One moment he was standing there. The next, his handgun was in his grasp and a pale lance of fire was driving toward Tom.

It passed some inches above Tom's head. Lucy stared. Tom had not even drawn his own handgun.

"Tom! Shoot!" cried Lucy.

"Certainly not!" he called back in English, annoyed. "Please, Lucy, be quiet. You're disrupting the order of the occasion with all this talk."

Jabat had not stirred. With the typical unshakable pride and courage of a Skikana, he was standing waiting.

"Sir!" he called to Tom, "I believe you have a return shot coming."

"That is quite correct, Captain," Lucy heard Tom reply through her whirling confusion. "How-

ever, I do not believe I will take it at this moment."

It was a physiological impossibility for a Skikana to turn pale. However, it seemed to Lucy that Captain Jabat faded.

"No, sir?" he answered. "May I ask when you do intend to?"

"I'm not sure," replied Tom, idly. "Possibly tomorrow. Possibly a year from now. Possibly not even in our respective lifetimes. In fact, the more I think of it, the more I think I'll probably never be able to get around to it."

"Ah. I see," said Jabat. He raised his handgun and saluted Tom. The other officers did likewise. "It has been an honor to know you, sir Ambassador and Assassin."

"Well, that's finished," said Tom, coming back to Lucy. "Let's get aboard so that the ship can take off." He patted a pocket attached to his weapons harness as he led the way up the ramp, Lucy following wordlessly at his side. "Ah, there you are, sir," he said to the ship's first officer, waiting at the airlock. "My compliments to the Captain, and will he take off as soon as possible."

"You men can go to your own quarters," he informed the Hugwos, standing at attention in the suite. "The Consort Lucy and I

will be settling down for the return trip." He watched them file out and shut the door behind them. "Loyal fellows," he remarked to Lucy. "But it's simply not good policy to let anyone see where I secrete this agreement."

"You realize how well we've come out of all this?" he asked, turning back to Lucy. "Instead of an exclusive agreement to deal with the Wockii in the future, we're relieved of our obligations to the Wockii, since they weren't the dominant intelligence on Mul'Rahr after all. And we've got an exclusive contract for immediate dealings with the true dominant intelligence, the Prar'Rhu — who is a biochemical synthesist with a skill beyond imagination. Our human economic future is assured in the galaxy—" he broke off.

"Lucy, what's wrong?"

"You!" exploded Lucy. Tom took a hasty step backward.

"You!" cried Lucy, following him up, and looking as if she was going to kick him. "What do you mean, getting into a duel, when I called and called and pleaded with you not to do it? What do you mean trying to get yourself killed? What if Jabat hadn't missed?"

"But he had to!" protested Tom, retreating. "You don't understand. The Skikana are proud

of their honor being without stain. "— Never merciful in victory, never resentful in defeat . . . remember what Jabat said? The chance to challenge had been offered. I couldn't leave the planet without duelling him. But good Skikana manners forbade that he should try to kill me after I had defeated them, here on Mul'Rahr. It might have looked like sour grapes. He had very deliberately to avoid trying to kill me in the duel. That's why I refused to shoot back. It would have been murder."

Tom stopped backing up, feeling he had scored a point.

"To say nothing of the fact," he added a trifle smugly, "that I have now stymied all future challenges to duel. Since no one can fight me until my present duel with Jabat is completed."

"But that's even worse!" she burst out, enraged. "You knew there was no danger, and you let me stand out there and worry. And you told the colonel I wasn't trustworthy, and I know you don't trust me! Oh, I could kill you myself! I could—"

"Wait!" yelled Tom, as she started to advance on him again. "Wait! I tell you I do trust you—"

"You don't."

"Didn't you read what I wrote on your credentials just before the Skikana attacked?" cried

Tom. "How could I trust you any more than that. I left it all up to you if anything should happen to me."

"What do you mean. I—" Lucy ripped open her belt-purse snatched out her credential papers and unfolded them. "If you've done something else—"

Her voice failed. She was staring at Tom's handwriting.

"To all Assassin Guild Officials . . ." she read aloud, "*the individual presenting this is not a wif, but my consort, on whom falls the duty of completing a mission in which I have just been slain. I charge all Guild officials and members with the duty of assisting her to complete that mission in my name, stating that I have the utmost trust and faith in her capabilities to do so. Thomas Parent, Apprentice and Guild Member . . .*"

"You see," said Tom. "All the time I did trust—"

Lucy flung herself upon him. Prepared rather for war than affection, Tom lost his balance and went over backwards onto the rug. Lucy fell on top of him.

It's very undignified," he managed to mutter, a few moments later, "for an ambassador, to say nothing of an Assassin to be on his back on the floor—"

"Oh, shut up!" said Lucy, kissing him.

— GORDON R. DICKSON

*Youth is beyond doubt the most precious
commodity in the world—too bad it's—*

Wasted on the Young

by JOHN BRUNNER

The doorbell sounded.

Hal Page had been attending to two final tasks: first, checking around the apartment and making sure everything was ready for this, which was going to be one *hell* of a party; second, trying to decide where to put the notice. He would have liked to destroy it, but when he came to the mouth of the disposall and opened it — letting the faintest, faintest whiff of the stink from the far-away incinerators mingle with the heady perfumes loading the air in the room — he found he had changed his mind. He needed the solid feel of it in his hand, the crinkly rustle of it in his ears, to drive him to the completion of his ultimate purpose.

At a party like this, no hiding place was likely to remain secret, especially in view of his reckless reputation; the guests would make it a point of honor to seek out and, if possible, ruin

his most costly possessions; to make him break new records when he cleared up the mess and replaced the spoiled items. But he dared not have anyone even guess at the motive for throwing such a party on this randomly chosen day. If anyone realized word would spread like the rumor of plague, and he would spend tonight alone, staring at nothing, and feeling the cold hand of terror on his heart.

"Oh, God *damn!*" he said aloud, snatching the notice into a place of concealment in the front of his loose silk shirt. Automatically he consulted his watch, though he knew the bell had sounded twenty minutes at least ahead of party time. It was the most expensive watch in the world; it had cost him four full years, and sat on the back of his left index-finger measuring the decay rate of a tiny grain of radium.

The bell sounded a second

time. He reached his decision. What the hell point was there in keeping the notice? Every word of it was ingrained in his mind, and could be summed into the single terrible warning: *tomorrow!*

But if he had no intention of being here, of being alive tomorrow, why hesitate to have the paper destroyed?

He thrust the document into the disposall as he had originally intended. The gesture brought him a sense of calm, of boats being burnt. He went smoothly and coolly to open the door.

"You're early, but come in anyway—no reason to delay the . . ."

He got that far before he realized that the man facing him -- a little older than himself, say thirty-five, slim, saturnine, bright eyed -- was wearing the black of an adult. And then, with a twisting grimace of disgust, he made to close the door, wishing it were possible to slam it with a crash.

"Wait," the man in black said softly. "Remember me, Hal?"

Page hesitated. He made a valiant effort to see the face above the drab black garb as that of an individual instead of merely as the mask of an adult, and relays of memory closed. He said, "Why -- at a party of . . .

What was the girl's name?"

"Karen Sottine -- but that doesn't matter. Mine does. I'm Thomas Dobson." The man in black paused, his eyes sharp as scalpels. "Are you going to make me stand here where anyone passing down the corridor might see me? Are you going to have them start to wonder why an adult comes calling on Hal Page, the professional youth? You see, I know about the notice you've had, and the reason for this spectacular party tonight."

"You're not going to be here?" Page forced out violently. "I said 'open house', but hell's name I didn't mean --"

"No, of course not." Dobson managed to put into the short disclaimer an infinite quantity of contempt, and Page wanted to writhe but lacked the time before the other continued. "Your guests won't be less than half an hour late -- you know that as well as I do. Even for a glimpse of the legendary Hal Page, who gambled and got away with it, who's dragging so many others after him by his example."

Page recovered his self-possession and made a mocking half bow. "So you've come for a sight of me, have you? To see what you've missed? Well, come in then. Have what you want, at my expense!"

He waved Dobson past him with a grandiose gesture, indicating the array of delicacies with which the room was stocked; antiques and *objets d'art* had been thrust aside hastily to make room for them. "Champagne — genuine champagne from France? Caviar? Lark's tongues? Take your pick, it's all charged to me."

"Thank you," Dobson said, and selected a sliver of hard toast with which to dip into a bowl of red caviar. "You know," he added musingly when he had swallowed the first mouthful, "it's a shame you're not equipped to value this for what it is — that you should see it only as a gigantic prop for your ego."

"You're not equipped to enjoy anything," Page snapped. "God, even the first time I met you — what? Five years ago! — you weren't equipped to get fun out of life! You sat there like a brooding ghost and poured out second-hand philosophical claptrap that nobody wanted to listen to —"

"You listened." Dobson dipped a second portion of the caviar and the toast crunched noisily between his teeth.

"Only because I didn't believe you could be real," Page grunted. "There you sat — there was this girl alongside you, the one

with pretty red hair and a mouth that — well, skip that. But I got her afterwards."

"I know. She told me," Dobson swallowed the last of his toast and dropped into a soft chair. A fugitive smile crossed his face.

"You mean she looked at you twice?" A vague stab of non-comprehension troubled Page momentarily.

"We got married," Dobson said. "A course of action which probably wouldn't interest you very much."

"Damned right," Page said shortly. "She had a hell of a body, but her mind was all cluttered with the same kind of nonsense you were spouting that evening . . . And yet, you know, I guess I should be grateful to you in a way. Up to that time I'd run with the herd; I'd taken for granted all the pious nothings which I'd had spooned into my ears in school. I looked at you, and I thought *hell*, if they're going to take me and grind me into the same mould as you, I'm going to get my kicks first. And — why yes! It was right on the following day that I went out and got myself something which cost a whole year for the first time. And I felt great. And I went right on from there."

"Tell me something," Dobson cocked his saturnine head and

regarded Page with apparently sincere interest. "Didn't you feel anything when you ran your debt up over a century?"

"Sure!" Page gave a harsh laugh. "I felt I was getting out from under."

"Nothing else?"

"I know what you mean. You're trying to say: wasn't I scared that they'd come along and cut the ground from under my feet? Hell, no. You take yourselves too seriously, you adults. A minimum of thirty years free, that's what they tell you. Granted, I had a bad moment the day I woke up and found I was a week past thirty — I'd sort of lost count during a weekend party. But it kept on, and kept on, and here I am. Thirty-two years, one month and four days."

"Stop," said Dobson quietly, and reached for another dip of red caviar.

Page reddened. He said, "So what's going to be done about it? My debt's up to three hundred years now, and there isn't a damned thing you can do! It's spent — or it will be by dawn tomorrow!"

"And what do you have to show for it?"

"I have to show what anyone will tell you. I have proof of more guts than you. I have

proof I wasn't scared of the consequences. I didn't turn around and make myself into an adult ahead of due date, so that when they called for me I'd go fawning and saying, 'Look, here I'm already acting like one of you — please be kind to me!'"

A sudden thought broke his train of words like a derailment. He shot out an accusing finger. "Hey! How do you know about the — the . . .?"

The question trailed off into silence colored with more than a little alarm.

"No, I haven't come to get you, if that's what you're thinking," Dobson said equably. I am in fact required to call on you and make sure you understand the responsibilities which go with all of the privileges you've enjoyed."

"Sure, I understand them fine," Page said, and motioned towards the door. "Now suppose you get on your way, and leave me to have my last fling."

"Sorry." The voice sounded genuinely regretful, but Page alertly sought a trace of sarcasm in the dark-browed face. "I have to do the job, and if I don't get to complete it before your guests arrive I just have to try and do it later. So the choice is fairly simple: sit and listen now, or sit and listen later because there won't be anyone else here to keep

you company — the word will have got around. And you know how superstitious everyone in your group is about someone who's been given notice. As though they suddenly carried the taint of a deadly disease."

He'd been comparing it mentally to plague, earlier; that gibe got through Page's annoyance. He dropped into a chair facing Dobson and sighed.

"I'd rather take you and push your smug face down the disposall, but — oh, spit it out and make it short!"

Dobson folded his hands calmly on his lap. He said, "I doubt if you've caught up on classics of literature during this expensive whirlwind of a life, but maybe if you'd done so you'd have developed a greater insight into your situation, particularly if you'd read a couple of works by the dramatist Shaw. Early and mid-twentieth century. Mean anything to you?"

"Point. Come to the point. I've had my notice — you know that — and I don't want to be *bored* tonight of all nights!"

"**Y**e-es, you have rather a marked capacity for boredom, don't you? Seems somehow unfair . . . Well, to be precise what I had in mind was a beautiful capsule summary of the contemporary economic set-

up which is probably apocryphal, but who can be sure? Reputedly, Shaw said in his old age that youth was wonderful; what a pity it had to be wasted on the young! For in his view — as expounded at some length in *Back to Methuselah* — only the wisdom which age entrains can fit an individual to make optimum use of the energies of youth."

Dobson's eyes went once around the room, seeming to take in, sum up and dismiss everything for which Page had staked three centuries of existence. Page shivered and ordered him violently to hurry up with his little chat.

The other briskened. "All right. Well, even enclosed as you are in your psychologically incestuous circle of good-time chums, it must have been borne in on you that there has been progress since the old days? That we have colonized two other planets in this system, that we are reaching out to explore the planets of other stars?"

"I caught something about it on three-vee," Page said in a heavily ironical tone.

"Yes. Moreover, we enjoy a universally high standard of living, in which we apply as the only truly dependable economic yardstick the investment of individual effort."

"I've spent three centuries

worth," Page grunted. "Have you any news that isn't stale?"

"Patience!" Dobson raised a slender hand. "I'm required to do this, as I told you. Even if your interruptions compel me to spend all night at it."

"I heard! I just don't see the point of the lecture on current affairs. Are you softening me up to tell me that I'm to be sent out to Mars or somewhere, to sweat on one of those damned construction projects?"

"You caught that on three-vee too, presumably," Dobson suggested with acid politeness. "No, you are not to be sent to Mars. The work there is almost at the point where human effort can be supplanted by machinery, and only skilled options are likely to remain open there in future. Do I get the chance to make my point, or do you so much like the sound of your own voice you'd rather hear only it between now and tomorrow morning?"

Page made a disgusted gesture and leaned back in the chair.

"Thank you. In your last year of school, when you should by rights have been old enough to make a fairly enlightened decision, you were instructed in the forms of modern society. You were told, for instance, of the expenditure against credit which would be made available to you

at least until age thirty, and that the credit was charged like all expenditure nowadays against a standard base-scale of individual work. Only the time counts; there's no question, for instance, of someone who's not capable of highly skilled work being made to return more years of unskilled labour to balance the accounts. We're very rich as a race, we human beings—we don't have to be petty in such things," he paused

"You were told the reasoning behind this system. You were told—and like most adolescents, you certainly didn't believe—that an endless round of pleasure and self-indulgence ultimately would grow boring, and that by the time you got your notice, to repay to society the credit you had drawn, you'd wish to make some more constructive use of your life. You were told also that there was nothing fixed or inevitable about this repayment; there's a certain inalienable minimum available to everyone, so that by living frugally a person may continue to be his own absolute master as long as he wishes—this course is usually chosen by those with a strong rebellious and creative bent, who would rather sit on the edge of a desert and paint sunsets than take up an adult's

post in the world. I don't wish to criticize such people, by the way; in my view, that marks them out as among the most mature and self-reliant specimens of the race."

Unused to sitting and listening, Page had begun to fidget. Now he burst out again, angrily this time. "I was certainly told all this, but I wasn't convinced, and I *still* am not convinced. I'm getting a hell of a lot of kicks out of life, and the idea of being arbitrarily grabbed by the neck and —"

"Not arbitrarily," Dobson cut in, with the first hint of strong feeling Page had yet seen from him. "You were told; you didn't listen."

"Told what? That — how did you put it? That 'an endless round of self-indulgence' would end up by boring me? Hell, the only times I've been really bored have been like now, when some stuffy-brained adult started preaching at me!"

He jumped up and went to fetch himself a shot of brandy.

"The fact remains," he went on over his shoulder, "I'm not fooled as easily as most people. You know they go around almost in awe of me? Like I'd done something special! All I did was see through this guff about what my debt to society consists of! I told you frankly, I had some

bad moments when I realized I'd hit age thirty with a debt already topping two centuries. Then I caught on. If you jumped on me right then and there, the first possible moment, the very day I got past the promised limit, you'd mark yourselves for scared. People would have said, 'It's a fraud! They jumped on Hal Page because he took what he wanted from life and didn't give a damn about the time he'd used up. Hell, if we're all going the same way, let's take what we can while we can!' Isn't that the size of it?" He rounded on Dobson with a challenging glare.

"You're visualizing the whole of your generation spending their credit by the century, the same as you," Dobson murmured. "Do you seriously think that would matter? I said we're a rich race. You have no conception how rich we are! If every single one of the guests you've ever had to all your wild parties — if every guest at every party you've ever been to — if everyone of your entire generation decided to spend as freely and lavishly as you, all it would take to absorb this would be to re-price their expenditure down to the productive effort we can reasonably accomodate during their later lives. We're embarrassingly rich, Hal! These days, we sel-

dom even have to send a notice to people. With the thirtieth birthday come and gone, people tend to get restless—they lose interest in their round of pleasure—they turn up one day and ask to be assigned for some real work. I did that myself."

"But I'm not like you," Page rasped. Somehow the contempt he had intended to load into his voice rang false on utterance.

"The point I'm making still stands," Dobson countered equably. "Our difficulty is in utilizing the resources which make themselves available to us. Nine people out of ten who reach the age of thirty nowadays have already lost heart for mere passing amusements. They've taken a course of study, or set themselves a small research project, or made plans for a family—done something adult, in short. And we have to cope with this tremendous flow of creative energy, channel it, make the most of it . . . That's why we're going out to the stars. It'll be a hell of a long time before we actually reduce starflight to a routine operation, like a trip to the moon, but we're going to need that escape route simply for the sake of not wasting the potential modern human society boils off like—like surplus heat from an engine!"

"Finished?" Page growled. He

drained his glass of brandy and poured another shot.

"Not quite. We can't let things slide; this is what I'm trying to put across to you. We can't raise the age of full credit to thirty-five, for example, simply to reduce the pressure on us to absorb the would-be adults."

"I'd have no objection!" Page blurted, thinking of the terrible warning notice he had thrust into the disposall: *your full free credit period terminates tomorrow . . .*

"But already people are finding it hard to last out thirty years fooling around." Dobson raised one eyebrow. "Did you not just hear me say so?"

"I've heard it all! I'm sick of it all! There's nothing more you can tell me—how about using the door?" Page tossed down the second brandy as though he hated it.

"Yes," Dobson sighed, and made to rise. "It's all been said to you, over and over. You just don't seem able to draw the conclusions . . . 'None so deaf as those who will not—' Ah, never mind."

Page watched him move towards the door. The hostility died in his eyes as the final question burned upwards toward full consciousness. Without intending, he found himself starting to voice it.

"Dobson! Do you know what's . . .?"

And there it faltered, partly because he was ashamed to admit to this black-garbed intruder that the prospect made him afraid, partly because he was afraid.

The saturnine man paused and looked back. "Do I know what they'll make you do? As a matter of fact, yes. But I'm not empowered to tell you."

"Make me? I thought there was supposed to be a range of free choice!" Page forced some of his normal bluster back into the words.

"You poor fool," Dobson said. "How many choices do you imagine remain open to someone who's spent more than three hundred years' worth of credit?"

And he was gone.

But it was a great party. There were just two bad moments — the first, when meditechs had to be called after a fight developed between two men over some chit of a girl Page had had last year and didn't think worth the trouble; the second, when he found himself screaming at the crowd to drink more, eat more, dance more frantically, and realized that their eyes were on him, their faces halfway frightened at the dreadful intensity of his manner. He checked himself de-

liberately and covered his moment of self-betrayal by seizing the nearest girl around the waist to smother her face in kisses. He must not — dared not — let it be suspected that he was under sentence of death. Tonight, up to the very last minute, he must be with people, he must have the noise and laughter and the crash and smash of priceless articles, a soft hot sweat-pearled body under his, a silk pillow for his head ringing with Dobson's calm, terrifying voice echoing in memory.

With the third girl, around three in the morning, he failed to make it, and knew that the time was come.

Abruptly he pushed her aside and got off the bed. He went into the bathroom and shut the door behind him. Luckily there was no one in here just now, though earlier three or four people had been showering down together and writing obscene verse on the tiled walls with a bar of lavender-colored soap. He steadied himself with one hand and gazed at his reflection in the floor-to-ceiling mirror.

"Last time," he whispered. "But they'll remember me."

The one who cheated *them*. The only ambition he had ever conceived.

It wasn't unique to himself. But others whom he'd heard of,

who tried the same, who found the prospect of being snatched away from this ceaseless selfish delight intolerable, had botched the job. There were whispers; there were shuddering rumours in answer to casual questions. "Where's so-and-so lately? Haven't seen him around." *Oh, he got his notice. "And —?" Tried to get out from under. Cut his throat. "And —?" They healed him.*

"I guess Dobson would accept that," Page told his reflection, seeing the grim lines form around his soft mouth. "I guess he'd say they were warned and had to take the consequences. But being told in advance doesn't justify it. I don't give a damn for paying back what I've had in credit. No one asked me when they set up this filthy system, and I opt out!"

His voice had peaked to a loudness that scared him; he didn't want to be overheard. When he went, he wanted the party to continue. Maybe it would go on till the news came back: *Hal Page made it! Hal Page got out from under!*

One final twinge of irresolution overcame him; then he recalled the expression on Dobson's face as he went out, and thought about the implications of his parting promise.

No: better the silent dark of

death. And he — he wasn't going to botch the job.

The aircar had cost him one and a half years' credit. It was going to be well worth it, he thought dreamily as he gulped down the five capsules of hypnotic — three hours' credit — and set the controls to carry him out to sea. There was just about enough fuel for fifty miles; by then, he'd be at thirty thousand feet. And hitting water from such a height ought to be pretty much like smashing into a stone wall. If they even got back enough to use for prosthetics they'd be lucky, but that was the most they could hope to have back from . . . Hal Page's famous record-breaking debt . . . of more than . . . three hundred . . .

Blackness. And horror.

Light in darkness. Awareness. A shocking, horrifying lack of bodily presence. Vision, indestructible without lids to lower over the traitor eyes. He tried to scream, and found he had no voice; he tried to rise and run, and found he had no legs.

He was in a large, light room, pale walled, without a window, and facing him on a steel chair was the grim black form of Dobson, somehow elongated from front to back, as though he was deeper than he should be.

A voice said, "On now," and a

whitish presence moved at the edge of vision, crazily out of proportion: a woman in a sterile coverall.

"I think you have the lenses too far apart," Dobson said. "He's probably getting exaggerated-stereo vision."

Something monstrous loomed in Page's field of vision, and the perspectives of the environment shrank to something nearer normal.

"I'm sorry for you, Hal," Dobson said softly. "And by the way, don't try to talk. We haven't cut in the vocal circuits yet."

The consciousness of Hal Page withdrew, turned into something smaller than a mouse, began to run frantically around and around in the confines of his brain . . . which, he knew and could not face knowing, was all that was left to him.

"You may go insane," Dobson said, his voice reduced to a thin whispering. "But I guess in some senses you've always been insane. Borderline psychopathic, incapable of drawing a rational conclusion from what you were told, incapable of empathizing to the point of taking someone else's word. I guess we have to be grateful that people like you still turn up occasionally—it's our greatest strength as a race that we can build on our own weaknesses . . ." he paused.

"There was almost nothing left of you, Hal, but you should have known from what I told you when I called at your apartment that you were a rarity, too rare to waste. We're compelled to be strictly honest; there *are* unpleasant tasks to undertake, and we never hide the fact. You elected yourself for one of them, in full possession of all the information which would have enabled you to back out if you'd cared to. But you didn't. You went right ahead. You spent credits founded on other people's efforts until the free choices open to you as repayment dwindled to a single possibility.

"So here I am with the task of telling you, after you made the mistake of thinking you could welsh on your debt." Dobson sighed heavily.

"We have to go to the stars, Hal. Creeping outward. As I told you, it's forced on us because we have so much energy to absorb, so much frantic creativity, so much skill and impatience. One day we'll go at the speed of light, freely and easily, but before that epoch arrives there must be scouts, explorers, pathfinders . . . You, Hal. You're going to Rigel, as the commander, and the crew, of a slow, slow rocketship, and the round trip is going to last just about three hundred years."

—JOHN BRUNNER

THE DECISION MAKERS

by JOSEPH GREEN

Illustrated by GAUGHAN

*His job was to make decisions for
his people. And these terrifying
Earth creatures did it themselves!*

I

The Decision Maker swam leisurely just beneath the surface, listening to the vast pulse-beat that was the life of his people. It had been some time since he had eaten last and his

eyes, obedient to that primal command, were alert for prey; but hunting did not interfere with the more mental functions which occupied the group part of his mind.

He angled to the surface for air, glancing briefly at the hu-

man's Gathering-Place while his head was above water. The round gray buildings squatted like over-large toadstools on the rocky shore a hundred body-lengths away, dimly seen through the snow that a driving wind had brought down off the mountains.

As he dipped beneath the surface he caught a glimpse of something dark and sleek to his left and turned that way. The fish saw him and tried, too late, to flee. He bit off its head while still in motion, swallowed it, then seized the body in his webbed fingers and disposed of it in two bites.

The fish-which-flies comes, Decision Maker, came a strong projection from the south. It was a composite voice made by many individuals, and accompanying it was a clear image of a small winged ship.

He swam to the surface and turned his eyes to the southern sky. The ship itself was too small to be visible, but he located it by the brightness of its flaring retro-rockets.

Then the fires winked out as it sank below the horizon.

He called for strength from all people in his immediate area, received it, and projected. He found the ship immediately, now moving swiftly toward him. And yes, the human's Decision Maker was inside.

"I've put us in a polar orbit, Conscience Odegaard," said the shuttle pilot to his only passenger. "Ground Control says the blow-storm should clear up by the time we make a round. I'll de-polarize the floor viewplate and let you look Sister over direct while we wait."

He touched a control and the floor between their seats grew milky, then transparent. The harsh, xanthic light of Capella G flooded in. Below them, stretching endlessly to the horizons, was mile after mile of deep blue water.

The pilot made a few final adjustments on the attitude gyros, then relaxed and said, "Atlantis is on the other side, and we'll pass over the station in a minute."

Allan Odegaard stared with weary disinterest at the watery landscape. They were moving toward the planet's northern pole, and the edge of the North polar continent soon came in sight. He saw a narrow ledge of ice hugging a low and rocky shore.

"The station's under those," said the pilot, pointing. Allan gazed where the finger indicated, but saw only the white-tinged clouds of the blowstorm. As they moved inland the clouds fell behind, and he saw great mountains rearing craggy heads

in an immense annular formation, the dominant feature of the continent. A thin sheet of ice covered most of the lower land between the peaks, sparkling and glittering in the sunlight. Like a rather flat diamond in a Tiffany setting, Allan thought. Then they were over the sea once more.

"There's the first peaks of Atlantis," said the pilot, pointing again, and Allan saw three small islands floating like green jewels on the blue water, the last two curving sharply away to the left. Then the view was monotonous until they reached the southern polar continent, where the mountains seemed taller and the icecap even thinner.

Allan sat back and relaxed, knowing he had seen the planet's entire land area, Sister, or Capella G Eight as it was more properly known, was visually less interesting than most, and nowadays even the best bored him. He had been too long away from home. After this assignment he was going to *insist* on returning to Earth, if only for a vacation. A Practical Philosopher could not afford to lose contact with the people he represented.

The pilot was good, the touch-down scarcely jarring the little shuttle. A big, smiling man in cold weather clothes met Allan at

the ship's base and helped him loosen his helmet. The fresh air was so cold he almost strangled on his first breath.

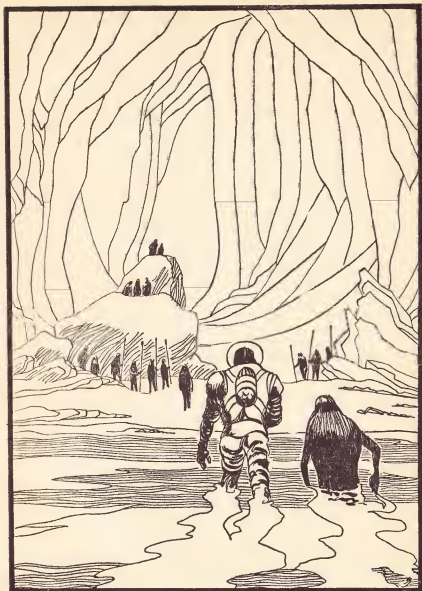
"I'm Station Manager Zip Murdock, Conscience Odegaard," said the big man in a hearty voice. "And this is Phyllis Roen, our biologist."

The tiny woman by the big man's side said, "I'm afraid I'm responsible for getting you here, Conscience Odegaard. Zip and the others don't feel a question even exists."

Murdock glanced up at the cargo hatch, where the pilot was already rigging the small crane. "They don't need us for the unloading. Let's get inside and get you settled, and then Phyllis can bring you up to date on our problem—if we have one."

The sun had moved behind a high cirque in the west, and deep shadows were creeping across the field. Allan started with them toward the foamfab buildings, which huddled at the base of a rocky ridge two-hundred yards inland. From the ridge to the sea the ground had been cleared of loose rock, the debris forming two long piles of heaped boulders. Half of the cleared area nearest the beach was used for a landing field.

They had taken only a few



steps when there was a loud yell of warning behind them. Allan turned, to see that the scene had suddenly and dramatically changed. From behind the rock walls near the water, and from the sea itself, fist-sized rocks were appearing and flying toward the Earthmen. The unloading crew was scrambling for shelter, yelling wildly and drawing their laser guns.

"It's the seals!" said Phyllis, and there was fear in her voice. Murdock had already drawn a laser pistol, its dark red jewel glinting in the fading light. There were no attackers in sight, just the rocks appearing from nowhere and arcing toward them. After a moment Murdock, in apparent frustration, fired toward a cluster of rocks near at hand. The hit boulder sparkled briefly, absorbing the heat but not all the light. Other beams began to flash as the unloading crew got into action. The little landing area became a weird tangle of multicolored lights, shifting shadows and coruscating rocks. The net effect was to provide a flickering but adequate illumination.

Allan saw his first seal clearly as it left the shelter of the rocks and ran for the water, dragging a wounded comrade. They were tiny creatures, only half his height, and they moved with an

odd, stiff-jointed swing from one leg to the other that looked awkward but was marvelously fast. Murdock saw them also and lifted his gun, but the beam hissed through the air where they had been as they dove together into the sea. And abruptly the creatures were gone. It was quiet again and the darkness was creeping swiftly over the narrow beach.

"The little devils are getting bolder," said Murdock, holstering his gun. "That's the first daylight attack on dry land."

Allan stooped and picked up one of the stones which had just been flung at them. It was apparently obsidian, and had been hand-chipped until it had several sharp edges, each capable of penetrating a spacesuit. Primitive — but deadly.

"How did they propel them so far?" he asked Phyllis, but before she could answer an excited voice called, "Miss Roen! Miss Roen, I've found a dead one in the rocks! Do you want the body?"

Allan saw the small woman visibly hesitate before she called back, "Yes, please. Take it into the lab."

"I'd better stay here a moment and assess the damage," said Murdock, moving toward a man who was lying on the ground holding a bloody arm.

"If you'll go with Phyllis, Conscience Odegaard . . ."

As they approached the buildings Allan saw two sentries standing on rocky eminences, where they could observe the entire area. Large floodlights brightly illuminated the ground around the buildings. Evidently these civilians had learned to take some rather military precautions on Capella G Eight.

There was no airlock, but the station personnel had built an anteroom where both spacesuits and cold weather gear were hung. Allan shed his suit with thanksgiving, and turned to find Phyllis Roen already out of her heavy clothes and waiting for him.

The tiny woman was obviously Eurasian, with very black hair streaked with gray and features which were delicate without being pretty. He estimated her age at around thirty-five. She still looked very good to him, and this was another indication that he had been too long away from Earth.

"Do you like what you see, Conscience Odegaard?" Phyllis asked, and though she was smiling there was an edge in her voice. He realized he had been staring.

"I'm sorry," he said quickly. "And please, call me Allan." He

paused, not wanting to explain that 'Conscience' was a popular term rather than an actual title, and he had grown very tired of hearing it. A doctorate in philosophy was the highest academic achievement on his record, but to qualify as a Practical Philosopher master's degrees were required in political science, alien psychology, sociology and biology. The public, when it learned of the unique responsibilities of the Practical Philosophers, had swiftly christened them the 'Consciences of Mankind', and the name had stuck.

Mankind needed a conscience, these days. His swiftly expanding exploration and colonization of the galaxy was bringing him into contact with dozens of completely new lifeforms, and seemingly limitless variations of those already familiar. Time and again the question had arisen of whether alien creatures on habitable worlds were animals or intelligent beings, and some wrong decisions had been made before the P.P. corp was established. The exhaustive academic routine deterred all but the most hardy, and there were less than a dozen 'Consciences' to date, but they had brought the problem somewhat under control. At least romantic Space Service captains were no longer declaring a planet unfit for colonization because

its overlarge ants had unusually well-developed instinctual patterns.

This time her smile was more sincere. "All right, Allan, and the same. Now if you'll come with me I'll take you on the penny tour, and after dinner we'll have a look at the dead seal."

II

The Decision Maker's body had relaxed into the state of lazy somnolence which was the nearest his kind approached sleep, but his group mind was still active. As he moved automatically toward the dark surface for air he turned the matter of his opposite among the humans, and finally concluded that there were too many unknowns at present. He was unable to perform his function.

He could, and did, reach one conclusion, and communicated it to those individuals whose added consciousness within his mind enabled him to be a Decision Maker. It was that the people would make no further attacks at present. The next move would be left to the humans.

At dinner Allan met about half the station's complement of forty scientists, and discovered there was a general air of cheerful optimism prevalent. On some

tiny stations on bitterly hostile worlds he had seen isolation and confinement sour personal relations until the whole crew was ready to commit murder. He was surprised, as Phyllis kept rattling off names and professions, to find meteorologists, geologists and glacialists dominating the group. Usually it was chemists, biologists, and the new 'Environmental Adjustors'.

Zip Murdock did not appear for dinner. Apparently he and the unloading crew were still busy outside.

The departing thunder of the shuttle's rockets penetrated the aerated walls as Phyllis led Allan into the lab. The seal was lying on a table in the cold room, an area ventilated to outside atmosphere. Phyllis produced light but warm clothing for them and they went inside.

Allan looked down at the prone form on the table, the sleek skin marred by a deep-burned hole in the neck. It was the head that gave the first strong impression of seal. The face had a black, square-cut nose, long whiskers, a rounded ridge of forehead rising abruptly above the muzzle; but the body ruined the illusion. The lower abdomen split into two short legs, each ending in a large flat pad. The upper members, though equally short, had a jointed section, and the ends

terminated in long ridged fingers of cartilage, with a thin membrane between.

Allan ran trained fingers over the musculature of a leg. The large muscles on the front and back were equal in size, a wonderful arrangement for swimming but somewhat awkward for walking. Yet he had seen two of them actually running when they retreated after that brief attack on the landing field.

He asked Phyllis how they did it. She grinned, an impish grimace on her small face. "They fool you, Allan. A bit more adaptable than they look Watch."

She lifted one pad clear of the table, held the leg with her other hand and slowly forced the pad to move. It revolved until it was perpendicular to the body, and he saw that it was set in a very flexible bone socket. She dropped the leg, rolled the creature on its side and twisted the other pad in the opposite direction. It also moved to the perpendicular.

"One pad before, one behind. A very stable arrangement," said Phyllis. "It gets around with relative ease on land, even though it looks awkward to us, and you saw how they threw stones with those arms."

"Not with the arms. Look what they found with this fellow." Allan stepped to another bench,

picked up a long flat strip of hide she had not noticed, and folded the ends together. A wide section in the center formed a pouch.

"A sling! Of all weapons." There was a touch of awe in Phyllis' voice. "Well, *this* should convince Zip, if he still needs convincing!"

"That the seals are intelligent? I doubt it. Animals have used tools before."

"Yes, but — they didn't have these earlier, you see. They live an almost entirely aquatic existence, and the only artifacts we've seen have been sharpened basalt spears. This is a dry land weapon. They just *invented* it, to use in fighting us."

"That's interesting, but still no proof. This continent you're trying to raise has been dry land several times, I understand. Quite possibly these creatures have used the sling in the past and retained an instinct of how to build it."

"A far more sensible explanation than intelligence," said a new voice.

Allan turned to see Murdock entering the cold room from outside. The big man stamped some clinging snow off his feet and walked to the table. "H-m-m-m, a nice fat one. Let's have him for dinner tomorrow, Cissy."

"Zip! Please, I have a hard enough time living with the memory that we *did* eat a few!"

"And they were a little fishy tasting, but not bad," said Murdock cheerfully. "Beats the concentrates every time. Look, I've got to change and go eat. Don't let this dizzy female fill your head full of nonsense, Conscience Odegaard."

"I do not form premature conclusions," said Allan carefully. Murdock, and most of the scientists here, were university employees, the result of a steadily increasing trend for large universities to contract colonization evaluations. They had almost edged out the competing private companies, and the government had long ago settled for supervision of the contracts. These people had a strong vested interest in seeing that his decision went against the seals. When intelligence was established it was standard policy to abandon the planet to its native owners.

"Fine. Cissy is unabashedly prejudiced on the question. I'll see you later in the evening, then."

As the big man closed the door behind him Allan turned to the woman and asked, "Even in an unmilitary organization such as this, isn't that manner of speaking to you a little familiar?"

She gave him a cool glance.

"Perhaps, but that's because he feels familiar. We've entered into a trial marriage contract, and plan on full matrimony when we get back to Earth."

"Oh, I see. That's odd, I wouldn't have thought you compatible types."

She shrugged. "Who says we are? Perhaps it's just sex drive and propinquity on both sides. But in any case we're living together, and were perfectly happy until we started quarreling about the seals. I had to go over his head to get you in here, and he's going to be a long time forgiving me for that."

Allan found himself wishing heartily he had not ventured into such personal ground. It was presumptuous of him, and her answer had brought back his own deep-seated loneliness, twisting the knife of bitterness again. Kay had quickly divorced him when he had announced he was going into space; there would be no 'widow's wait' for her. She had married again before he finished his final studies and left Earth, and when he visited his children his little daughter was already calling another man father.

The life of a regular spaceman was bad enough, but at least he returned to Earth an average of once every two years. Allan had not been home in eight. Planet

after planet raised the unique problem which called for a P.P.'s special authority, and the swiftly spreading network of exploration brought in new ones faster than decisions could be made. Unless he rebelled he might spend the rest of his days hopping from world to world, with never a life of his own.

Allan beat a hasty retreat. "I'd like to see your notes, if you've already performed a dissection," he said, turning toward the door. "Tomorrow I'll run one on this chap myself."

"Of course," said Phyllis, reverting to business as easily as he. "I ran several, and I've never seen a body better adapted for both swimming and walking. But the brain is—very odd. You'll have to see it for yourself."

She escorted him to his cubicle, then left with word that she would see him later in the lounge. He found his luggage stacked on the bunk, and an hour later, showered, depilated and dressed in clean clothes, he headed for the lounge. Most of the station's off-duty personnel were there, including Murdock.

"Come sit by me, Allan," the big man called. "I'll split my shaker with you."

Murdock was drinking *maquella*, a mildly intoxicating beverage

from Centaurus Four that had no after effects. Allan accepted a glass and sat down.

"What do you think of our operation so far?" asked Murdock pleasantly.

"I hardly know enough about it to think at all. Can you give me a general run-down on your plans? I was amazed to find Phyllis the only biologist here, and this is the first time I've seen an evaluation team with a high percentage of glacialists."

"He can talk about it all night," said Phyllis, who was sitting on Murdock's other side. "But the basic fact is that Sister is so nearly Earth-type that chemists and biologists aren't really needed. The only genuine problem is raising Atlantis, and the general opinion is that this can be accomplished by a slight change in the weather."

"Yes, all it requires is a new ice age," said Murdock with a chuckle. "But to give you some background—the median temperature on Sister is somewhat higher than humans prefer, and the open land area almost nonexistent. Offhand it looks very unpromising. But this planet has a very fortunate peculiarity. All three major land masses, the two poles and Atlantis, have the same distinguishing feature, a great circle of volcanic mountains surrounding a lower inland

area. Atlantis is the largest and lowest of the three, and almost entirely under water. We propose, not to raise the continent, but to lower the ocean level.

"The means of accomplishing this is relatively simple. Sister, despite the high concentration of water vapor in the air, has a low precipitation rate. The atmosphere is exceptionally clean due to the tiny exposed land surface and low volcanic activity, and there is very little dust to serve as sublimation nuclei for raindrops. Precip is almost entirely dependent on giant condensation nuclei, and that too is small because the oceans have a low salinity rate and there is very little sodium chloride in the air. Briefly, we propose to stimulate the precip rate by blowing up the smallest of the four moons, in such a fashion that most of the material turns to dust. We will slow it below orbital speed with the explosions, and create a rain of dust into the upper atmosphere which will continue for many years. Precip will rise to several thousand percent of normal. Over both polar regions this will come down as snow, and the rapid accumulation in the two enclosed continents will swell the existing ice-fields until a sizable percentage of the planet's water is locked up in ice. The world ocean level

will drop, we estimate slightly over three-hundred feet, and that will bring all the ring of mountains and about half the interior of Atlantis above the surface. In addition, the temperature will drop to bearable limits. And then you can send in the colonists."

"It sounds almost too simple," said Allan wonderingly.

"That's an explanation in very broad terms. There are a few relevant details to be worked out, such as the large sunmirrors we'll have to post above each pole, to artificially stimulate the firm fields and turn snow to ice by continuous melting and refreezing, the four mirrors we plan to place above what will be the largest lakes on the continent, both to help dry them up and stimulate the precip rate, the river shaping that will have to be done when the dropping ocean level starts them flowing, and a few thousand smaller details, some of which we can't even imagine yet. This will be the first attempt to terraform an entire planet by weather control. But if plans work out, within a hundred years nine-tenths of Atlantis will be growing grass, and that's a land area of almost eight million square miles. The farming activities of the colonists should keep the dust level high

and make the new precip rate self-perpetuating."

"It's a big undertaking, but everyone thinks it can be done," said Phyllis earnestly. "When you compare that much surface to those tiny areas on some of the new planets, where every square foot of soil has to be treated and re-treated before it will take Earth plants, you can begin to see what a wonderful opportunity this is."

"Yes, we've taken at least two thousand cores out of the higher areas in Atlantis," resumed Murdock. "They show it's been raised and inundated three times within the past hundred thousand years, obviously a result of volcanic activity causing a temporary increase in the dust level. Plant growth was extensive each time the water receded, and we have a fairly thick layer of humus-rich soil on which to plan an economy. The sea has both animal and plant life in great quantities, including many species, like the seals, which can live on either land or water. I think Sister, within two hundred years, can support a hundred-million people."

"Weather control is still not an exact science, even on Earth. Can you really be this sure of how your dust and mirrors will affect this planet?"

"No, but we're certain enough

to recommend going ahead with it once we've finished our current job of assessing the ice-carrying capacity of this pole. After all, there's no intelligent life to be harmed if we blunder."

Phyllis glared angrily at Murdock, but did not answer the implied derision. Most of the people in the lounge had been drifting out as they talked, suppressing yawns. The tiny Eurasian rose, said goodnight to Allan, and left also.

"I'm prepared to offer you any assistance within my power, Allan," said Murdock rising. "Just let me know what you need."

"Thanks. I'll probably call on you. Phyllis and I are going to dissect that seal in the morning and see what we can learn."

They learned very little Phyllis had not already known. Allan pushed back from the table after four hours of intense work, and turned off the recorder into which he had been making a running commentary. The seal was basically a variation of its distant cousins on Earth. There was nothing of unusual interest about its bodily processes, with the exception of that baffling brain. The pan was small, the cranium narrow, the actual size less than a quarter that of a human. But it was like nothing he had ever seen.

They washed up and went to lunch. Phyllis had been a competent but not brilliant helper, and the notes she had taken on what little she had observed of the seal's behavior were no help. Her belief that the creatures were intelligent was apparently based on woman's intuition rather than accumulated data.

"I think we've learned as much as we can from a dead specimen," he said after the meal. "What we need is a *live* seal. How do we go about getting one?"

"That's a tough question. They carry away their wounded after an attack, and it's almost impossible to catch them in the water. Several of the men tried, when we were —" she made a moue of distaste "— eating them."

"I'll discuss it with Murdock tonight," said Allan.

I should be the one! the Decision Maker projected into the night, his individuality for once overriding the group consciousness and speaking clearly. Mine is the risk, let mine be the body! . . . but the soft, insistent voices of the individuals comprising the race memory cried No! No! it may not be! No danger to the Decision Maker. No danger. No danger . . . and he yielded, letting the desire to offer himself for the trap the humans were setting fade from his mind. With

its passing came the need for decisions.

The humans were establishing a work party near the edge of the water, the work to continue after dark in hopes of luring the seals into an attack. Men with stun-guns were hidden throughout the rocks, and three large lights had been concealed at high points overlooking the area. The seals movements must be planned to insure that the humans captured only the one individual the group selected. Also, the attack must look real, must seem to involve a large party while actually exposing the smallest possible number to danger.

The word 'Tactics' appeared in his mind, and almost immediately there was an answering pulse. One of the new memory carriers, containing only the human knowledge . . . He scanned the word and its associated meanings, leaped to three other memorybank units checking out inferences and related data, and had his plan. One of the humans had been an ardent follower of a game played on Earth, one which involved deceptive movement of bodies, concerted displays of an object called a ball to a specified section of the playing area . . . He formulated the necessary details, and swiftly communicated them to the selected units of the people.

III

Allan crouched low in the rocks and watched the water. The two larger moons were passing slowly through the clear sky and the beach was well-lighted. He turned away a second to rub his eyes, and when he looked again the beach was swarming with short figures. It was almost as if he had signalled them to attack by looking away.

The seals came running upright out of the water and scurried behind the two walls of rock, moving stiff-legged but swiftly across the open area. From his vantage point Allan could see the leaders starting to twirl their slings. He drew his laser pistol and sent a red beam flaring into the sky.

Instantly the searchlights came on, brightly illuminating the areas behind the rocks where the seals were gathering. The work gang dropped their tools and drew stun-guns, and the men hidden in the rocks rose to their feet, searching for targets.

The abortive attack stalled. The seals broke for the sea, fleeing what was obviously a trap. Allan saw the hurrying line of sleek forms plunging into the water, and rubbed his eyes. He would have sworn there were many more of them than now seemed visible.

"Got one!" came an exultant yell, and "Me too!" said another voice. But Allan's attention was abruptly distracted. A seal popped into view less than twenty feet away, twirling a sling and looking directly at him.

He hastily drew his stun-gun, fired and missed, cursed himself for a bungling professor who belonged in a classroom, fired again, and saw the small figure drop. The sharp-edged missile clattered to the rock at his feet.

The floodlights abruptly went out. There were wild yells as the humans, their eyes slow to adjust back to moonlight, found themselves blinded. Allan groped his way to the seal he had shot and crouched over the body. They should have gotten several prisoners, but remembering the creatures' habit of carrying off their wounded he was taking no chances.

After a moment someone found the outlet where the power cable had been disconnected, and the lights came back on. The noises of fighting had died away in the darkness, and now Allan saw there were no attackers in sight.

"Hey! My seal's gone!" called the first man who had claimed a hit, as though he could hardly believe it.

"Mine too!" said another voice, and other men began to climb

among the rocks, looking for seals they had been certain they saw fall. When the confusion subsided Allan discovered they had exactly one captive . . . His.

The small creature in the cage twitched its long whiskers, stirred, and after a moment raised its head. The eyelids moved, and Allan found himself staring into a slightly protuberant pair of golden eyes. The thick black lips opened as the seal gave an almost human yawn, showing the long incisors of a carnivore's dentition. The mouth closed with an audible click of teeth, and it moved to the bars separating them.

"At close range it even looks intelligent," said Phyllis softly, and the captive turned the golden eyes on her. They were alone in the cold room.

I am not intelligent as you humans use the term, said a clear, cold voice in both their minds, in perfect World English. *As a separate entity I exist as an animal, directed primarily by inherited instincts. But I am a member of a mentally interlocked race, and the combined minds which merge in my brain possess the quality of intelligence.*

The two humans turned toward each other simultaneously, and each saw that the other had received the message. There was

a brief silence while the stunning implications sank in, and then Phyllis opened her rosebud mouth in a yell of high glee. "I told him! Oh, the thick-headed oaf, I told him, I told him!"

Her enthusiasm was contagious, but Allan forced himself to be calm. A sense of steadily mounting excitement was building up and his breath was ragged—these unexpected discoveries were one of the rewarding parts of his job—but this was no time to become emotional.

There was an odd quality to the mental voice. It gave a strong impression of a group speaking in chorus, but with the voice of this individual dominating the rest.

"How may I best communicate with you?" he asked aloud.

As you are now doing. Your immediate thoughts are unclear when you do not vocalize.

"Then first," his mind shifted into high gear, many events of the past few hours clicking together into a coherent pattern, "first I want to know why you only pretended to attack the work party and deliberately let us capture you."

Because we wish to establish face-to-face communication. It is our understanding that you will decide whether these humans now here will leave, or stay and be joined by many more.

"That is my responsibility, yes. But why are you interested in my decision?"

There was a brief silence. Allan felt Phyllis' hand clinging tightly to his arm, and he stared into the unblinking golden eyes, waiting. The creature finally projected, *It would be best if you would accompany this unit to a Gathering-Place. I am only a messenger. The Decision Maker wishes to meet you face-to-face, in the presence of a complete memory.*

Allan turned to look at Phyllis. She was staring at him, wide-eyed. Her expression asked, *Trap?*

He shook his head, turned back to the seal. It had closed its mouth, and the heavy lips hid the sharp teeth. For the first time he saw how the large eyes, the downward curve of the mouth, the jutting whiskers, gave the seal a tragic-comic look, like the sad clowns of an ancient circus. "I will go with you," he said aloud.

"**Y**our safety while you are here is my responsibility!" said Murdock angrily. "I couldn't possibly permit it!"

"You have no way of preventing me." Allan made a strong effort and kept his voice down. Despite the man's bluff friendliness he had not liked Murdock



from the first, and this unexpected opposition was too ill-timed to be anything but deliberate obstructionism. "I have the authority to take command of this, or any other civilian-operated station, and I will summarily remove you as manager if that becomes necessary."

Murdock jumped to his feet, stood towering over the smaller man. His face was a fiery red, his big hands clenched into fists. Allan found himself wondering if Murdock would actually be foolish enough to hit him.

"Removing me may not be as easy as you seem to think!" the big man bellowed. They were alone in his private office, and the sound was almost deafening.

"Don't be childish. The station personnel are thoroughly familiar with the authority of a Practical Philosopher. They aren't going to risk a prison sentence by supporting you."

"You talk pretty rough for such a small man!"

"Please. Will you simply supply me with the needed equipment without further argument?"

Murdock supplied it. An hour after daybreak Allan and the seal were swimming through the blue water, about twenty feet below the surface, heading northwest along the ice shelf. The station's standard underwater gear was a spacesuit with a

ducted propeller mounted on the back, with a simple variable speed control installed between the first two fingers of the right hand. At maximum he could move less than ten miles an hour, and keeping his head tilted back for vision and his arms rigidly ahead for guidance was tiring.

Surrounding them, but keeping at a respectful distance, were fighting seals, all carrying basalt spears. Phyllis had assured him she had seen a team of seals kill the largest fish in this freshwater ocean with those sharpened rocks.

It was another long and weary hour before his escort projected, *Move toward the ice and descend slightly. Slow your speed.*

He obeyed, and after a moment he saw a dark shadow in the white wall of ice, a shadow that swiftly grew larger. He angled slowly toward it and it became a jagged tunnel. The seal moved ahead to guide him.

After a few yards the roof began to recede and he angled upward; he rose until he broke the surface, to find himself in a scene of strange but compelling beauty.

It was a large grotto in the ice, at the head of a glacier that had reached the shore and lost its momentum. It had calved in a peculiar way, leaving this great

hollow opening, and the sides had grown together again at the top. The ceiling was thin, sunlight pouring in through several long cracks where the joint was not perfect. The yellow beams struck one ice wall and rebounded in glittering fantasies of color, springing from surface to surface in a deceptive brightness that concealed more than it revealed. The massive walls were rough and jagged, with many sharp protruding edges. It was a fairy palace of crystal and glass, of reflected light and softened shadow, and Allan Odegaard thought it the most beautiful spot he had ever seen.

Lying on the little beach and watching him with unblinking attention were about thirty adult seals. As he waded out of the water Allan saw that they formed a semi-circle, and at its center was the one who could only be the Decision Maker.

IV

The two Decision Makers faced each other, the golden eyes of the seal meeting and matching the brown eyes of the small Earthman. Allan lowered his gaze to check his environmental indicator, then undid his helmet. The air had a slightly fishy smell, but was crisp and cold.

We welcome you to this Gathering-Place, came a projection, strong and commanding, and again it was compounded of many minds, though the overriding personality was that of the Decision Maker. We have brought you here to prove that within the meaning of your terms defining 'race' and 'intelligent' we are an intelligent race. We want you to declare this planet unlawfully occupied by Earthmen, and order those present to leave and all others to stay away.

"I have no choice but to grant that as a race you are intelligent," said Allan slowly. "But if this mental ability is achieved by grouping minds, and as individuals you are something much less than the unified whole, then you are a unique lifeform and will require further study. But for now I would like to know why you want us to leave the planet."

We know what the other Earthmen, those who understand the ways of wind, water and ice, seek to do here. Three times from the year our racial memory came into being the ice has grown, the sea lowered, the area you call Atlantis become half land and half water, the land green with growing things. Three times within memory our people have moved in great numbers onto the land, only to be driven back into

the sea when the ice melted once more. We have confirmed, from knowledge found in the minds of Earthmen, what we already felt to be true, that we as a race cannot progress until we have freed ourselves of the environment of the sea. In another eight thousand of our seasons the ice will begin to form, as it has before. We will move onto the land, as we have before. But this time we will apply what we have taken from the minds of your companions and stored in our memory; we shall master the physical sciences, develop the necessary technology, learn to control the weather as you do. There will be no more flooding of the land.

Listening to the calm, relentless way the words formed themselves and beat slowly through the neural passages of his brain Allan accepted the fact these people could do exactly what they said.

"You have taken all the knowledge of all the humans here and stored it in your 'racial memory'?"

All except yourself. Yours we will have in a few more nights.

"Since you can read my mind you know that I have a difficult decision to make. It would help me if I knew what your 'racial memory' is, and how it works." I would also like to know your

goals as a race once you are on the land, and how you plan to achieve them."

Those questions are easily answered. Our group memory is an accumulated mass of knowledge which is impressed on the memory area of young individuals at birth, at least three such young ones for each memory segment. We are a short-lived race, dying of natural causes after eight of our years. As each individual who carries a share of the memory feels death approaching he transfers his part to a newly born child, and thus the knowledge is transmitted from generation to generation, forever.

As for our aims, they are similar to your own. We have achieved — there was a brief pause — economic plenty. We have none of the conflicts between individuals or groups of individuals which characterize your society. But this is not enough. We seek to improve the life of the individual within the race, and this entails increasing the natural lifespan, eliminating enemies, perfecting a science of medicine — a concept new to us — and achieving the ability to enjoy pleasure, which we now know to be lacking in our lives. All this we can accomplish by means of the knowledge now stored in our

memory, once the land is again ours.

And the Earthman has corrupted another innocent race, thought Allan with wry bitterness.

We can read your thoughts when you project that strongly. You define 'corruption' as increased knowledge of the choices open to an intelligent being, and an inclination to make those choices which lead toward greater pleasure in life. Why do you consider this a retrogressive quality?

"I'm afraid it would be too complicated to explain, and perhaps I don't fully understand myself," said Allan grimly. "For now it's enough to know I must make a decision which will vitally affect your future, and I freely admit I'm going to find it hard to do."

Since you state we qualify as an intelligent race your path should be clear. If you are now ready another unit will guide you back to your base. When you have made your decision speak it aloud, and we will hear. Bear in mind that if you decide to stay we will harass and fight you in every manner within our power.

Allan slowly replaced his helmet and turned toward the water. He felt like a man who has eaten too large a meal and wants

nothing more than to crawl into a corner and estivate while it digests. But his meal had been mental, and he might be a long time in torpor before he fully understood all that he had learned.

The trip back was uneventful, and by noon he found himself in Murdock's office, with only Phyllis and the base manager present. He gave them a brief report, and watched the incredulous expression form on Murdock's face. Phyllis, too, seemed a little stunned.

"Do I understand you have definitely decided an individual seal is not intelligent?" asked Murdock when he regained his composure.

"I've made no decision. This ability to group minds is new to us, and requires study."

"Because their group intelligence is a unique phenomena is no reason to consider the individuals within the group as weak," said Phyllis heatedly.

"I'll probably want to talk to you again later," Murdock's voice was carefully expressionless. "In the meantime why don't you get a bite of lunch. Phyllis, can you stay a moment?"

Allan took the implied dismissal at face value and rose. He was hungry, but when he sat down to eat the concen-

trates seemed curiously tasteless. He kept thinking of the refreshing coolness of the air in the grotto, of the beauty of the sun on the sparkling ice, the strange and ancient wisdom he had found in a group of seals. How odd, that as a race they had achieved the goals that had dominated the thinking of Earth's best philosophers for thousands of years, and then had formed the conviction that the need of the individual were as important as those of the race. There were still social planners on Earth who were unable to think of people in any terms except 'groups' and 'masses'.

After lunch he put on cold weather gear and went outside. He walked the beaches all afternoon, hating his responsibility and the necessity for it. When he returned to the station at dusk his thinking had degenerated to vagrant thoughts; loose fragments, impressions and partial memories swirled through his mind . . . *we have achieved economic plenty, but this is not enough . . . corruption is increased knowledge of the choices open to an intelligent being . . . we will harass and fight you in every manner within our power . . .* The memory of blood oozing from the bitten body of a fish before the seal gulped it down without chewing, the sad-clown

faces, the overwhelming inclination to think of them as lovable pets . . . What would it be like, to share your thoughts, emotions and desires with your fellows, to form a composite being greater than the sum of its parts? There was a clear, reasoning power in the Decision Maker, an intellect of great strength.

When he stepped inside the door the p.a. was calling his name. He walked to Murdock's office as requested.

"Sit down, Allan." The bluff heartiness, the easy, friendly attitude had been discarded, as though the big man knew they no longer served a purpose. His voice was brisk and impersonal. "I'm going to give you some information about Sister you won't find in the regular reports. All personnel who are aware of it have been sworn to strict secrecy. Not that that's necessary in your case, of course."

"Thanks," said Allan stiffly.

"You are aware, I'm sure, that Earth's supply of uranium is almost exhausted. In the excitement over this new 'sunlight diffusion' method of power generation and propagation the public has tended to forget the thousands of other industrial and medical applications of atomic science. They think that virtually unlimited power, available anywhere at anytime, will solve all

problems. Actually, the need for uranium grows every day, and it has proven hard to find in commercial quantities. Sister is a very rich planet. The cores we have taken from Atlantis show extensive deposits of uranite and davidite, as well as some pitchblende, carnotite and tobernite. The primary concentration of davidite is on a rather high plateau, one which will be above water in five years. I predict that within ten there will be a refining plant there, shipping ore to Earth. I can't over-emphasize how important this is."

"That's interesting information, Zip, but I fail to see the direct connection. I'm sure you are aware economic considerations never play any part in a P.P.'s decision."

"Oh, come off it! That garbage about being the 'conscience of Mankind' won't wash with me. When word of these deposits reaches certain ears on Earth they'll have your credentials withdrawn in a minute if you give us trouble."

"Do you really think so?" asked Allan. His voice was soft, almost gentle.

"I'm certain of it. Idealism has its uses, but it can't stand in the way of a genuine need."

"Would this sudden disbelief in a P.P.'s authority be connected in any way with the royalties

your university will lose if I rule against you?"

Murdock's face flushed, and he rose to his feet.

"Can't you understand that I'm thinking of the good of *all* mankind?"

Allan sighed tiredly. "Perhaps you are. And the needs of all mankind influence me, in a way you might not understand. But you're a little late with your information. I've already made up my mind. And I'll require that underwater gear again in the morning."

When he was standing in his own cubicle after dinner he spoke into the air; "You said that you could hear me. Acknowledge that you do."

There was a sudden electric sense of awareness, as though someone had picked up a telephone and stood holding it without speaking. He waited, and after a moment the calm multiple voice asked, *What is your wish?*

"I would like to speak to the Decision Maker again, in person. Would you send someone at daylight to take me to the Gathering-Place?"

There was another brief silence, and he could almost hear the ether stirring with the hurried conference.

Then the voice said, *It shall be done.*

The beautiful grotto seemed unchanged, except that there were several more of the spear-carrying warriors present. They did not trust him, which indicated that their mind-reading abilities were limited. He had prepared no treachery.

The Decision Maker regarded him sadly from the center of his race's memory bank, the golden eyes unblinking. *This time you have summoned us.*

Allan took a deep breath of the cold air and paced back and forth on the small beach as he spoke, not looking at the seals. "You said you had no concept until our arrival of the science of medicine. Do you understand the meaning of the term 'gamble'? Because I am gambling with your future, and I can't possibly know how it will turn out. Let me give you my reasons and then my decision, which I have already sent to Earth."

The guards nearest him moved closer, their spears perceptibly rising. He sensed the air of menace in the room, and wondered if he had made a mistake in coming here in person. It would be strange to die in this ice palace, when he had many times felt himself to be in far greater danger and escaped alive.

"If you are left alone it will be eight-thousand years before a seal again walks the land, but

then it will be a safe and certain thing. If we occupy your planet and war comes, you will kill many Earthmen before you are finally hunted down and killed. But make no mistake about it, you will be exterminated. Man is a capable, ruthless, relentless foe, and if he sets out to destroy you he will succeed. Your cooked bodies will grace his table, and it will not matter that the brains he shatters contain a racial memory that reaches farther into the past than his own.

"I cannot endure the thought that another thousand generations of your kind should follow the tortuous road of the sea, gaining nothing but the day's sustenance. Neither do I wish war between us. My decision has been to report that you are definitely an intelligent race . . . but that I recommend completing the terraforming operation and starting colonization."

There was an instant stir among the seals, a silent shifting nearest him raised their spears and advanced, stood poised, ready to thrust him through. He glanced at the waiting warriors and back to the Decision Maker, and knew that his life hung on his next words.

He had not known how they would react, and his meager knowledge of hive-minds did not justify guesses, but somehow he

had not thought they'd take an immediate and personal revenge.

"I am an Earthman," he said slowly and clearly. "Sometimes I have been proud of my people, and sometimes ashamed. But the gamble I am taking is based on a knowledge of them, of other races, of your own, that you cannot match even with your long memory. If the colonists will follow my recommendation — cooperate with you, help you on land and be helped by you in the sea — there is no reason the two races cannot progress together. Despite our past history I have enough faith in man to think he will fulfill his share of the bargain. Will you match

my faith, and pledge your race to work with mine?"

The Decision Maker faced him silently, and he felt a secret tug of knowing sympathy for an individual who must decide the course of his entire race. The silence stretched out; the guards standing by him did not lower their spears.

The Earthman stood waiting for the word that would decide his personal fate. The decision that the two races could work together had been reached by reasoning, the one to tell the seals in person by a sudden impulse.

Now he would learn the truth of both. — JOSEPH GREEN

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SLOW TUESDAY NIGHT

by R. A. LAFFERTY

*It was just an ordinary Tuesday
night . . . rather slow, in fact!*

A panhandler intercepted the young couple as they strolled down the night street.

"Preserve us this night," he said as he touched his hat to them, "and could you good people advance me a thousand dollars to be about the recouping of my fortunes?"

"I gave you a thousand last Friday," said the young man.

"Indeed you did," the panhandler replied, "and I paid you back tenfold by messenger before midnight."

"That's right, George, he did," said the young woman. "Give it to him dear. I believe he's a good sort."

So the young man gave the panhandler a thousand dollars; and the panhandler touched his hat to them in thanks, and went on to the recouping of his fortunes.

As he went into Money Market, the panhandler passed Ildefonsa Impala the most beautiful woman in the city.

"Will you marry me this night, Ildy?" he asked cheerfully.

"Oh, I don't believe so, Basil," she said. "I marry you pretty often, but tonight I don't seem to have any plans at all. You may make me a gift on your first or second, however. I always like that."

But when they had parted she asked herself: "But whom will I marry tonight?"

The panhandler was Basil Bagelbaker who would be the richest man in the world within an hour and a half. He would make and lose four fortunes within eight hours; and these not the little fortunes that ordinary men acquire, but titanic things.

When the Abebaio block had been removed from human minds, people began to make decisions faster, and often better. It had been the mental stutter. When it was understood what it was, and that it had no useful function, it was removed by simple childhood metasurgery.

Transportation and manufacturing had then become practically instantaneous. Things that had once taken months and years now took only minutes and hours. A person could have one or several pretty intricate careers within an eight hour period.

Freddy Fixico had just invented a manus module. Freddy was a Nyctalops, and the modules were characteristic of these people. The people had then divided themselves—according to their natures and inclinations—into the Auroreans, the Hemerobians, and the Nyctalops; or the Dawners who had their most active hours from 4 A.M. till

Noon, the Day-Flies who obtained from Noon to 8 P.M., and the Night-Seers whose civilization thrived from 8 P.M. to 4 A.M. The cultures, inventions, markets and activities of these three folk were a little different. As a Nyctalops, Freddy had just begun his working day at 8 P.M. on a slow Tuesday night.

Freddy rented an office and had it furnished. This took one minute, negotiation, selection and installation being almost instantaneous. Then he invented the manus module; that took another minute. He then had it manufactured and marketed; in three minutes it was in the hands of key buyers.

It caught on. It was an attractive module. The flow of orders began within thirty seconds. By ten minutes after eight every important person had one of the new manus modules, and the trend had been set. The module began to sell in the millions. It was one of the most interesting fads of the night, or at least the early part of the night.

Manus modules had no practical function, no more than had Sameki verses. They were attractive, or a psychologically satisfying size and shape, and could be held in the hands, set on a table, or installed in a module niche of any wall.

Naturally Freddy became very rich. Ildefonsa Impala the most beautiful woman in the city was always interested in newly rich men. She came to see Freddy about eight-thirty. People made up their minds fast, and Ildefonsa had hers made up when she came. Freddy made his own up quickly and divorced Judy Fixico in Small Claims Court. Freddy and Ildefonsa went honeymooning to Paraiso Dorado, a resort.

It was wonderful. All of Ildy's marriages were. There was the wonderful floodlighted scenery. The recirculated water of the famous falls was tinted gold; the immediate rocks had been done by Rambles; and the hills had been contoured by Spall. The beach was a perfect copy of that at Merevale, and the popular drink that first part of the night was blue absinthe.

But scenery — whether seen for the first time or revisited after an interval — is striking for the sudden intense view of it. It is not meant to be lingered over. Food, selected and prepared instantly, is eaten with swift enjoyment: and blue absinthe lasts no longer than its own novelty. Loving, for Ildefonsa and her paramours, was quick and consuming; and repetition would have been pointless to her. Be-

sides Ildefonsa and Freddy had taken only the one hour luxury honeymoon.

Freddy wished to continue the relationship, but Ildefonsa glanced at a trend indicator. The manus module would hold its popularity for only the first third of the night. Already it had been discarded by people who mattered. And Freddy Fixico was not one of the regular successes. He enjoyed a full career only about one night a week.

They were back in the city and divorced in Small Claims Court by nine thirty-five. The stock of manus modules was remaindered, and the last of it would be disposed to bargain hunters among the Dawners who will buy anything.

"Whom shall I marry next?" Ildefonsa asked herself. "It looks like a slow night."

"Bagelbaker is buying," ran the word through Money Market, but Bagelbaker was selling again before the word had made its rounds. Basil Bagelbaker enjoyed making money, and it was a pleasure to watch him work as he dominated the floor of the Market and assembled runners and a competent staff out of the corner of his mouth. Helpers stripped the panhandler rags off him and wrapped him in a tycoon toga. He sent one runner to pay back twentyfold the

young couple who had advanced him a thousand dollars. He sent another with a more substantial gift to Ildefonsa Impala, for Basil cherished their relationship. Basil acquired title to the Trend Indication Complex and had certain falsifications set into it. He caused to collapse certain industrial empires that had grown up within the last two hours, and made a good thing of recombining their wreckage. He had been the richest man in the world for some minutes now. He became so money-heavy that he could not maneuver with the agility he had shown an hour before. He became a great fat buck, and the pack of expert wolves circled him to bring him down.

Very soon he would lose that first fortune of the evening. The secret of Basil Bagelbaker is that he enjoyed losing money spectacularly after he was full of it to the bursting point.

A thoughtful man named Maxwell Mouser had just produced a work of actinic philosophy. It took him seven minutes to write it. To write works of philosophy one used the flexible outlines and the idea indexes; one set the activator for such a wordage in each sub-section; an adept would use the paradox feed-in, and the striking analogy blender; one calibrated the

particular-slant and the personality-signature. It had to come out a good work, for excellence had become the automatic minimum for such productions.

"I will scatter a few nuts on the frosting," said Maxwell, and he pushed the lever for that. This sifted handfuls of words like chthonic and heuristic and prozymeides through the thing so that nobody could doubt it was a work of philosophy.

Maxwell Mouser sent the work out to publishers, and received it back each time in about three minutes. An analysis of it and reason for rejection was always given — mostly that the thing had been done before and better. Maxwell received it back ten times in thirty minutes, and was discouraged. Then there was a break.

Ladion's work had become a hit within the last ten minutes, and it was now recognized that Mouser's monograph was both an answer and a supplement to it. It was accepted and published in less than a minute after this break. The reviews of the first five minutes were cautious ones; then real enthusiasm was shown. This was truly one of the greatest works of philosophy to appear during the early and medium hours of the night. There were those who said it might be one of the enduring works and

even have a hold-over appeal to the Dawners the next morning.

Naturally Maxwell became very rich, and naturally Ildefonsa came to see him about midnight. Being a revolutionary philosopher, Maxwell thought that they might make some free arrangement, but Ildefonsa insisted it must be marriage. So Maxwell divorced Judy Mouser in Small Claims Court and went off with Ildefonsa.

This Judy herself, though not so beautiful as Ildefonsa, was the fastest taker in the City. She only wanted the men of the moment for a moment, and she was always there before even Ildefonsa. Ildefonsa believed that she took the men away from Judy; Judy said that Ildy had her leavings and nothing else.

"I had him first," Judy would always mock as she raced through Small Claims Court.

"Oh that damned Urchin!" Ildefonsa would moan. "She wears my very hair before I do."

Maxwell Mouser and Ildefonsa Impala went honeymooning to Musicbox Mountain, a resort. It was wonderful. The peaks were done with green snow by Dunbar and Fittle. (Back at Money Market Basil Bagelbaker was putting together his third and greatest fortune of the night which might surpass in magni-

tude even his fourth fortune of the Thursday before.) The chalsets were Switzier than the real Swiss and had live goats in every room. (And Stanley Skuldugger was emerging as the top Actor-Imago of the middle hours of the night.) The popular drink for that middle part of the night was Glotzenglubber, Eve Cheese and Rhine wine over pink ice. (And back in the city the leading Nyctalops were taking their midnight break at the Toppers' Club.)

Of course it was wonderful, as were all of Ildefonsa's — But she had never been really up on philosophy so she had scheduled only the special thirty-five minute honeymoon. She looked at the trend indicator to be sure. She found that her current husband had been obsoleted, and his opus was now referred to sneeringly as Mouser's Mouse. They went back to the city and were divorced in Small Claims Court.

The membership of the Toppers' Club varied. Success was the requisite of membership. Basil Bagelbaker might be accepted as a member, elevated to the presidency and expelled from it as a dirty pauper from three to six times a night. But only important persons could belong to it, or those enjoying brief moments of importance.

"I believe I will sleep during the Dawner period in the morning," Overcall said. "I may go up to this new place Koimopolis for an hour of it. They're said to be good. Where will you sleep, Basil?"

"Flop-house."

"I believe I will sleep an hour by the Midian Method," said Burnbanner. "They have a fine new clinic. And perhaps I'll sleep an hour by the Prasenka Process, and an hour by the Dor-midio."

"Crackle has been sleeping an hour every period by the natural method," said Overcall.

"I did that for a half hour not long since," said Burnbanner. "I believe an hour is too long to give it. Have you tried the natural method, Basil?"

"Always. Natural method and a bottle of red-eye."

Stanley Skuldugger had become the most meteoric actor-imago for a week. Naturally he became very rich, and Ildefonsa Impala went to see him about 3 A.M.

"I had him first!" rang the mocking voice of Judy Skuldugger as she skipped through her divorce in Small Claims Court. And Ildefonsa and Stanley-boy went off honeymooning. It is always fun to finish up a period with an actor-imago who is the

hottest property in the business. There is something so adolescent and boorish about them.

Besides, there was the publicity, and Ildefonsa liked that. The rumor-mills ground. Would it last ten minutes? Thirty? An hour? Would it be one of those rare Nyctalops marriages that lasted through the rest of the night and into the daylight off hours? Would it even last into the next night as some had been known to do?

Actually it lasted nearly forty minutes, which was almost to the end of the period.

It had been a slow Tuesday night. A few hundred new products had run their course on the markets. There had been a score of dramatic hits, three minute and five minute capsule dramas, and several of the six minute long-play affairs. *Night Street Nine* — a solidly sordid offering — seemed to be in as the drama of the night unless there should be a late hit.

Hundred-storied buildings had been erected, occupied, obsoleted, and demolished again to make room for more contemporary structures. Only the mediocre would use a building that had been left over from the Day-Flies or the Dawners, or even the Nyctalops of the night before. The city was rebuilt pretty completely at least three times

during an eight-hour period.

The Period drew near its end. Basil Bagelbaker, the richest man in the world, the reigning president of the Toppers' Club, was enjoying himself with his cronies. His fourth fortune of the night was a paper pyramid that had risen to incredible heights; but Basil laughed to himself as he savored the manipulation it was founded on.

Three ushers of the Toppers' Club came in with firm step.

"Get out of here, you dirty bum!" they told Basil savagely. They tore the tycoon's toga off him and then tossed him his seedy panhandler's rags with a three-man sneer.

"All gone?" Basil asked. "I gave it another five minutes."

"All gone," said a messenger from Money Market. "Nine billion gone in five minutes, and it really pulled some others down with it."

"Pitch the busted bum out!" howled Overcall and Burnbanner and the other cronies. "Wait, Basil," said Overcall. "Turn in the President's Crosier before we kick you down stairs. After all, you'll have it several times again tomorrow night."

The Period was over. The Nyc-talops drifted off to sleep clinics or leisure-hour hide-outs to pass their ebb time. The Aureoreans,

the Dawners, took over the vital stuff.

Now you would see some action! Those Dawners really made fast decisions. You wouldn't catch them wasting a full minute setting up a business.

A sleepy panhandler met Il-defonsa Impala on the way.

"Preserve us this morning, Ildy," he said, "and will you marry me the coming night?"

"Likely I will, Basil," she told him. "Did you marry Judy during the night past?"

"I'm not sure. Could you let me have two dollars, Ildy?"

"Out of the question. I believe a Judy Bagelbaker was named one of the ten best-dressed women during the frou-frou fashion period about two o'clock. Why do you need two dollars?"

"A dollar for a bed and a dollar for red-eye. After all, I sent you two million out of my second."

"I keep my two sorts of accounts separate. Here's a dollar, Basil. Now be off! I can't be seen talking to a dirty panhandler."

"Thank you, Ildy. I'll get the red-eye and sleep in an alley. Preserve us this morning."

Bagelbaker shuffled off whistling Slow Tuesday Night.

And already the Dawners had set Wednesday morning to jumping.

— R. A. LAFFERTY

GALAXY BOOKSHELF

By Algis Budrys

The great fashion in dealing with science fiction used to be to treat it as a pocket universe. And "used to be" is not so far behind us that we do not still get home at night with shoe-tip bruises on our heels and elsewhere. Nor has there been as yet a marked thinning-out of either numbers or energy among the vigorous proponents of that root-bound view. In one aspect, that view is nurtured by making critical comparisons of stories by, say, Paul Janvier, to the writing of "the Mainstream." On those rare occasions when something more specific is obviously called for, the comparison is always to, say, John A. Sentry. This is because whether the names of these two science fiction writers are remembered now or not, they are obviously safer in each other's arms than they would be if party of the second part were, say, Herbert Gold, much less

somebody like Terry Southern.

I don't propose to enlarge much on this here. My point is not that Gold or Southern are intrinsically better writers than, say Sam & Janet Argo. My point is that many, many science fiction people of various degrees of graceful intelligence have been scared for a long time that they are, or have been certain of it and have been playing the point spread to build little copies of Mediterranean villas for themselves out here just this side of Hadrian's wall. They are now having to come to terms with the invasion of the cosmopolitans.

But what all this means, and how it relates to the paramount twentieth century dilemma — whether to be square or hip — are things we must each grope for on our own time, since we are met here only for the simple discussion of books published

within our harmlessly hobbyistic circle of entertainment *aficion*.

Glibness and memory play strange tricks, as when I recall that my grammar school history teacher was fond of saying that the Holy Roman Empire was neither holy nor Roman or an empire. Memory calls him to mind on the occasion of this review of the 9th Annual version of *The Year's Best SF* (Judith Merril, Ed., Simon & Schuster, \$4.95); reason rebels against glibness when one considers that my grammar school history teacher lived partly by refraining from trying his borrowed wit on Charlemagne (stubborn fellow with a beard; lost at Roncesvalles but kept his scepter in good repair).

There is less pretense every year that the running title of this important and often distinguished series has any literal meaning. In this year's compendium (the year treated by this late 1964 book is, of course, 1963), there are such inclusions as Ben Bova's good article "Where is Everybody?", Jules Feiffer's whimsically vicious cartoon feature "Dog Eat Dog", two other cartoons which show up callow in contrast to their distinguished company, and W.J.J. Gordon's "The Nobel Prize Winners", a passing fair piece of

fiction which is assuredly about scientists but is not science fiction or, sadly, fantasy. And the editor herself goes to some lengths to explain that the book consists of the "best" pieces she could find in a complex and crowded marketplace; that some of them are substitutes for stories she would have included had she had more room, or world enough or time. She is joined by Anthony Boucher, among the supporting memoranda which traditionally leash the various stories together and then provide the cart for them to pull, in a species of lament not only for the condition of the marketplace but on the diversity of goods for sale.

In short, the editor of this institution not only displays a great deal of competence in maintaining it at all, she then tells you how difficult it is, how intractable the material, how increasingly hard it is to ferret out its annual significance.

Meanwhile, back in the book, chaos reigns. All the running commentary does is make excuses for it, where no excuses are needed. The stories include Allan Danzig's "The Great Nebraska Sea," Bernard Malamud's "The Jewbird," and Cordwainer Smith's "Drunkboat." Together with the Bova article, which offers a lucid explanation for why

we have not been obviously visited by extraterrestrials, and the Feiffer cartoon feature, these are the only instances in which the creator has obviously stayed in control of his material according to his original intention all the way and made it seem worthwhile. The Danzig is also the book's crispest exposition of scientific notion, Hal Clement's "Hot Planet" having disqualified itself by attempting to also be about people. The Malamud is a fine, sly fantasy and the "best" story in the book, if by that we mean it successfully treats of the nature of things in *and* outside the skin. The Smith is as usual the obvious triumph of emotion over reason, but see farther in this column for a laudatory view of Smith's reasoning powers.

The rest — and it is a long list, containing names to conjure with, if your taste runs to conjuring with Andre Maurois — are variously interesting. Some of them, like Alfred Bester's "They Don't Make Life Like They Used to" or William Tenn's "Bernie the Faust" do not fluff until the last few notes and have meanwhile furnished some memorable moments you may well prefer to the powerful but strict integrity of the Danzig. There are one or two things that clearly embarrassed me to the point

where my critical faculty went dead; apart from the Gerberg and Gallagher cartoons, these specifically include Richard Matheson's apprentice Crow Jim poem, "The Jazz Machine." There are one or two things I enjoyed reading while convinced they were simply not good enough for anything named the "best," even the "best" of such a content-free colophon as time has made of "SF." And what I meant by my reference to Maurois a while back was that even Stanton Coblenz, who I fear is coming in for some hard licks these days after not getting enough of them in the 1930s, could have handled this idea better, and that Miss Merrill assuredly knows this, and that therefore the inclusion of "The Earth Dwellers" is a straight sop for the culture vultures. He is here not because he has written one of the best SF stories of the year, and not because the works of Andre Maurois are directly effective in determining the course of science fiction, but because someone associated with the preparation of this volume felt a need, still, to prove the respectability of the hands that turn to it. But it is not by Andre Maurois that the walls will be tumbled and the icons torn down; it is in any case too late to issue engraved invitations

to the barn-burning, and the guest list was compiled by subversives.

I think the thing that muses me most is that Miss Merrill has a good thing here, and keeps trying to make it something else, for formalism's sake. There is great value in having an annual collection, scrupulously compiled, respectably published, which to some extent does reflect the taste of the one knowledgeable person whose name is attached thereto. It hardly matters whether one story that is in has occupied space which should have gone to a story that is out, because the very nature of Miss Merrill's vested interest still gives her a broader field of candidates than any of the rest of us are ever going to evaluate anyhow. Nor does it matter that the ground seems to keep shifting under the editor's feet as the field makes contact with mean ol' mainstream and we spin toward the day when it will no longer be remarkable that someone has written a Rudyard Kipling novel set on the planets of distant suns, or that Herbert Gold, to pick up on my previous example, has written a short story about people which just happens to use a stock sf situation to prove its point as it could not have been proved in any other way. There is more per-

manent value in calling the series *Judith Merrill's Annual of Her Favorite SF*, and letting it go at that, and thus giving us the inevitable fascinating hodge-podge and letting the reader make of it what he will, than there is in trying to cobble the fragments of a villa into another villa. Science fiction is clearly in a process of catastrophic change; Miss Merrill says so, and the nature of the various contents of her book says so without her help and despite her attempts to make a shape out of the flying fragments before they have fairly started on their way.

But no one ever listens to me, and neither do I, very much. I think that what *The 9th Annual of the Year's Best SF* is most interesting for is as a piece of evidence for the assertion that better and more orderly times are coming; that there will be SF (whatever that means) by writers perhaps yet unborn who are always SF writers and yet not commercial science fiction writers; that there will be a healthy and enjoyable, entertaining (meaning "commercial") science fiction which clearly cannot be confused with anything else, and that we can then all pack up our dichotomies and go home to our various delights. I think the very existence of Miss Merrill's series has been a preci-

pitating factor, and that she would be happier in her blurbs if she relaxed and realized that no matter what you call it, it is the only empire in town.

N*o Future In It* is a collection of eleven stories by John Brunner, published by Doubleday at \$3.50. Seven of them are from British magazines; the other four are from the top U.S. publications. So this is a collection which combines novelty with certified competence.

"No Future in It," the first story in the book, is about a medieval charlatan—that is, a hapless fellow in a bind because he claimed to be a magician—who finally succeeds in evoking a time traveller within his pentacle. That is, he benefits by fortunate coincidence.

"Puzzle for Spacemen" is a murder mystery in space; the outstanding feature of it is the repeatedly underscored assertion that people doing dangerous work in a weightless environment would have a very bad time with corpses.

"Fair" is about a government agency whose purpose is to promote mutual understanding and whose gimmick is to disguise its *modus operandi* as a carnival entertainment device. The story ends with the hero's discovery of this fact.

"The Windows of Heaven" is about the man on the Moon who witnesses Earth's death when the sun flares, then goes down to the surface to re-seed it with life by leaving his own body there. At no time does Brunner refer to Alfred Bester's "Adam But No Eve," an oversight.

"Out of Order" is a gimmick story about a super-automated service mechanism which has been ordered to deliver something "yesterday." Slight but good of its kind, this story is clearly not in Brunner's main line of work, but does go to show that his range includes an occasional talent for humor, as "No Future in It" failed to do.

"Elected Silence," about a man who has been kept in solitary confinement by completely inhuman creatures for a very long time, and is then rescued by our side, is quite good in many places; the portrait of the central character's mind is very convincing. I have the uneasy feeling Brunner thinks his vicious Terrestrial military people are typical of their class, and that his compromising doctor is also symbolic of the moderate's ineffectuality. But that's his red wagon; my basic criticism of this story is that it could obviously have been told with more economy.

"Badman" is a soc. gimmick

story; the attempt to reduce human nature to something in a test-tube, whereon the proponent of the scheme-reagent drops in his idea and . . . See the bubbles rise and clarify the people! In other words, it's a story about how the idea of setting up straw-man hatred surrogates for everyone to blow off his aggressions keeps the world at peace, and furthermore permits the recruits to strawdom to feel a lot of deliciously masochistic pangs at how they'll suffer. (Prose courtesy your latest college bull-session; please leave a dime for beer.)

"Report on the Nature of the Lunar Surface" is another gimmick story, not bad, good enough and short enough so that it'll leave its point undisturbed.

"The Iron Jackass" is another sociological gimmick story; this one, I will not buy even if Mbiyu Koinange and Arthur C. Clarke both visit my living room to explain Indian birth-cries to me (Brunner having introduced the names of these gentlemen as supporting affidavits for a story about Slavs).

"Protect Me from My Friends" and "Stimulus," the last two stories in the book, are about two different kinds of superman; their mutual point seems to be that Man will have to be tricked into letting new breeds get start-

ed, and that getting started is not necessarily good for new breeds. It is the first instance in which Brunner betrays any sign of realizing that the world and the universe are not simple and will not yield to simple solutions. I am as encouraged to see it as I am discouraged by the auctorial introductions which precede each piece. These often seem to be about something else entirely, and always make each story sound the way a cake frosted with pure Crisco tastes.

The Planet Buyer, by Cordwainer Smith (Pyramid Books #R-1084, 50c, paper), is the author's first novel. That would automatically place it high on the reading list, even if Pyramid's notably honest Don Bensen were not suggesting it as a Hugo candidate. And there is more to it than that. But let us take it one step at a time.

The first thing anybody notices about Smith, of course, is technique; the jab, jab, jab of his repetitions which may in fact be part of a symphonic approach to the problem of communication; the picking up of clearly potent nonsense-words like "Vomact" or "Abba Dingo" and making characterizations out of them at his leisure, if one may use that term. I cannot guess what Smith thinks he is doing

in places like that; I know what he does to me, and he does it in style.

The most important thing about Smith, I am beginning to realize, is that all his stories relate directly to a completely consistent phantom universe; they are not so much sequels to each other as they are tesserae in a mosaic, and what appear to be loose ends or at best plants are in fact integral fragments of other parts which will not take on their intended function until he later lays down the main body of *that* part. What I mean is, he does not have a vague master plan and a trick of the mind which permits him to spin off interesting notions he may later discover are not suitable pegs on which to hang the "next" story. There is no next story. They are all going on at the same pseudo-time, which is as real for the phantom universe as our pseudo-time is for ours.

Whether he actually holds the complete work in his head at this moment is irrelevant to this part of my point, this part being that the only thing that prevents Smith from presenting us with a completely realized, seamless structure which will yield entertainment and information from any angle at any focus and speed — just like the real universe — is that he is limited by

his medium to describing infinity in finite time. We all are, of course, but the rest of us are content to take on the job in parts, whose exact relationships will come as something of a surprise to ourselves and represent a sort of discovery. If we manage to string together five or six stories or a couple of novels, we do it for the sake of a character or a nevertheless straightforward idea whose possibilities continue to open before us. Not Smith. He's not inventing, he's reporting. And he's doing it from God's point of view.

But whether he does actually hold the completed work in his head or whether it is unnecessary for him to ever do so — the only two possibilities — even a 149-page book can only be a larger piece than Smith has previously revealed all at once; it cannot possibly be a novel. Or, for that matter, a story (it's too long for that).

This particular piece is dominated by about half the story of Rod McBan, the scion of a family of Norstrilian sheep farmers, which automatically means he is fabulously wealthy (but only on the other side of the tariff barrier around his cannily simple home world). Thus he became "The Boy Who Bought Old Earth" in the earlier novelette version. In *The Planet Buyer*, we are pro-

mised by the author—or perhaps by a character in another piece who will turn out to have been the narrator of this one—that we will see the rise of this figure and his triumph over the volitions that would make of him an object rather than a player. The promise is not kept; McBan when we last see him has undergone some remarkable transformations from the heir with a shaky title to the legatee of a fantastic fortune pyramided for him by others, but he has yet to move on his own account. Considering that Norstrilian sheep are the only source of immortality drug, that McBan is the only handle the rest of the universe might grasp to pry Norstrilia open, that in Smith's universe there are no heroes or villains but rather—to borrow a frame of reference I dimly recall from somewhere—the hip, the square, and things, there is still a great deal due to pop, and many games to be enjoyed.

Smith proposes (or the narrator proposes) that the game is with the reader, at the end. It is not. He'd get torn apart or bored. And actually, I do think that Smith is reporting, and will file the latest dispatch in due course. Where I think he is actually reporting from is this universe, of course, and he is no more God than any of the rest

of us are. But how many of the rest of us have arrived at a working hypothesis that lets you move toward the advantage every time whether you know all the conditions or not?

I suggest that the most interesting thing about this book is that it is of things interesting; try some . . . a half a dollar is what you use it for.

—ALGIS BUDRYS

SCIENCE BOOKS

In addition to the two astronomical books discussed in the editorial, we have a clutch of others worth your attention.

Thomas Whiteside's *Alone Through the Dark Sea* (George Braziller) is only partly of interest here, since it is composed of three long essays. One deals with Captain Kurt Carlsend and his ship, the *Flying Enterprise* (remember?) one is about the evacuation of the island of Tristan da Cunha—and the third, entitled *To the Cytherean Phase*, is the one we're interested in now. It is an adventure story of a great voyage—the voyage of Mariner II to Venus in 1962, described in rich and anthropomorphic detail. What Mariner II reported of course, has been the subject of great and unceasing debate ever since. If its readings, or rather the interpretations of its trans-

missions, are correct, then we simply did not know anywhere near as much as we thought we did about the planet Venus. (All in all it seems a less troublesome assumption to believe that somehow some errors were made in Mariner II's reports.) Nevertheless, the flight was a tremendous technical achievement, and Whiteside's essay is probably the best lay account you can find.

Robert G. Aitken's *The Binary Stars* (Dover) is fairly technical and a somewhat dated survey of everything that was known as of 1935 or so about visual, spectroscopic and eclipsing binaries. This is a field that dates fast. It's too bad, of course, that such puzzles as VV Puppis and Epsilon Aurigae were not dealt with here. Nevertheless, *The Binary Stars* was, and remains, a classic in the field.

Riddles of Astronomy (Basic Books) brings back to us a well known science-fiction name, Otto Binder—who, as half of the most famous brother act in science fiction, Eando (for Earl and Otto) Binder, kept most of the sf magazines of the 30's in business. It is a defect of the book that Binder wrote it in the tones of a science-fiction writer, enraptured with the wonder of it all. There is far too much gee-whiz and over-dramatization, for a subject which is already so ex-

citing and provocative. Yet it may be that this sort of color will hold readers whose senses have been jaded by TV and the hard sell; and beyond question there is a large budget of interesting information in the book.

A fine book (but hardly "hammock reading") by Richard Hinckley Allen is called *Star Names: Their Lore and Meaning* (Dover). Did you know that our North Star, Polaris, was once known as Cynosura? (Meaning "the dog's tail".) And that from this the word cynosure made its way into the English language? Did you know that the wobbly northern "W" we call Cassiopeia looked to the Chinese like the porch of a house and was called Ko Taou? However, if there is anything you would like to know about what men of all eras have seen in the starry skies, this book is the place to find it!

One of the most pleasant and gently written handbooks for the amateur skygazer is *The Friendly Stars* by Martha Evans Martin (Dover). Originally published over half a century ago (but the skies don't change! And in any event it has been considerably revised and reexamined by Donald H. Menzel), this is a first-rate guide for beginners, and a pleasant companion for advanced starers at the stars.

—FREDERIK POHL

SCULPTOR

by C. C. MacAPP

*The plants grew strange fruit—but
within them was something stranger!*

Jim Frentrup, staring down at the planet he'd intended never to mention, let alone revisit, seethed with a mixture of feelings. There was dread, crawling icily up his spine. There was the futile rage at this ship's hard-eyed crew and their master, Trux Madden. There was self-loathing for having piloted them here, even at gun-point. There was the older shame he'd buried inside himself for eight years, since he'd lost an exploration crew on this planet, smuggled out the beautiful and strange little figurines he couldn't resist, falsified the ship's logs, lied through the hearings, and been permitted to resign his commission without official disgrace.

He no longer owned the fig-

urines, and had never shared in the fantastic wealth they now represented. It must have cost terrifically, even by Madden's standards, to trace them back to Jim, piercing the careful series of aliases. He glanced over at the man. Madden's square face showed none of the excitement he must feel; Madden's hands, brutal despite manicuring, were steady. He met Jim's eyes and said softly, "What are you waiting for?"

Jim tried to hold his own hands steady as he reached for the controls. As the ship dropped, he realized with surprise that among his other feelings was a hint of relief. Maybe now some of the gaps in his memory would be filled in.

He landed where he had before, beside a fallen obelisk on the wide rock-and-fill dam at a constriction of the valley. They made him sit where he was for half an hour, then Madden came to him and said, "I want you to go outside and walk around for a while. Don't get more than a hundred yards from the ship."

Jim got up woodenly and went.

They'd burned clear the scattered trees and brush from the middle part of the dam. He picked a way through smoking ashes to the downward side and looked out over the old ruins.

A few rabbit-like things moved among them furtively, and there were silent gray birds, but he saw nothing bigger. Whoever the people had been (there wasn't even a skeleton, but stone statues showed them to have looked like long-tailed sheep standing erect), they'd built for more permanency than they'd stayed to enjoy. Thick rock walls still stood, though adobe and timbers remained only as traces. The city had stretched the length of the dam, just below it, protected by levees from the two rivers that spilled around each end of the dam to curve down the sides of the widening valley. That had been choice bottom land; and from aloft, traces of the irrigation system could still be seen.

There'd been terraces along

both valley slopes, too, for miles above and below the dam. Whatever crops had grown on terraces and bottom land were long swallowed up by the natural flora, which ran heavily to squat trees with coarse cinnamon-colored bark and twisting horizontal limbs that supported lacelike sprays of blue-green foliage.

So far he hadn't seen anything he didn't remember. He turned and walked to the lake side of the dam. The water was clear and placid. Some flattish things drifted slowly above the water. A pair moved toward him and he hoped he remembered rightly that they were harmless and almost mindless. They were like transparent pancakes, thin but three feet across, with thickened centers where the vitals were and from which radiated cartilaginous ribs. They flew by scooping air and forcing it downward and rearward. They circled him leisurely, then came close and nudged at his head as gently as butterflies. Finally, having tasted or smelled, they drifted out over the lake again.

He glanced up. The two dots in the sky, barely visible, would be a pair of ships maintaining a telescope watch of the ground. The other three would be farther out, on guard, though the chances of anyone else being in this sector of space were vanish-

ingly small. Madden didn't take even small chances unless he had to.

A voice blared from the ship, "Frentrup. Come back in now." He turned and walked slowly toward the ladder, his anger stirring anew at the preemptory order.

He hesitated before climbing up, with a strange reluctance. Partly, it might be that he didn't look forward to being caged again, nor to the ship's scrubbed atmosphere with its faint smell of isopropanol and formaldehyde, after the planet's spicy air. Mostly, though, he realized, it had something to do with the formless dread. Somehow, the ship didn't seem much protection. He wanted to be outside where he could see what was coming.

Madden took him into the ship's salon, which was luxurious (not surprisingly, since this was a pirated and re-fitted luxury yacht). The outlaw sat relaxed, a beamer pistol stuffed casually in a pocket. He said, "Mix yourself a drink if you like."

Jim ignored the invitation.

"The original offer still stands," said Madden. "Work with me, and you can have your pick of any ship I've got, and a bank account you can live on comfortably for the rest of your life.

You ought to realize by now you've got nothing to gain by holding out."

Jim said wearily, "I've told you a hundred times I'm not holding out. I just don't remember."

Madden eyed him for a minute, without expression. "The things are solid diamond, not cast nor ground. That means some kind of fast crystallization, which implies a technology beyond ours. I can see, as you told me, that there was only an agricultural civilization here. So, either you didn't get the things here, or you got them here from other visitors. If you're protecting some alien race, you're wasting your stubbornness; I'm not going to repeat anything I hear from you. Self-interest will keep me quiet. And I only want a few of the things. Too many would break the price."

Jim scowled at him. "Don't you think I've figured out those angles? What sense would it make for me to hold out now? I'm in your hands. If I knew anything more I'd be eager to tell it, and make myself as useful as possible. That would be my only chance to survive. All I know is, I think I got them here."

"It's a pity you didn't keep your ship's true records."

"I can quote them to you if

you insist," Jim told him, "word for word and figure for figure. They won't mean any more to you than they do to me."

Madden shifted to a more comfortable position. "It's hard for me to believe you sent your whole crew out in a bunch, while you stayed alone in the ship. The X-Corps doesn't operate that way. Nobody does."

"It's no easier for me to believe. I told you I had some kind of a fever."

"Well, we've checked the air and the ground, and there are no germs around here that could infect a man. Obviously it wasn't any plague that wiped out the natives, or there'd be skeletons, at least. What's your theory about that?"

Jim shrugged. "Your theory of advanced aliens is as good as any. For all I know, they may come back in five minutes and take us too." He enjoyed Madden's scowl.

Madden reached for a small communicator, and said into it, "Bring in the movies." To Jim he said, "I'm going to assume for the moment that you're telling the truth. I want to show you something."

Two men came in and set up a translucent screen and a small projector. One touched a stud and a colored movie appeared

on the screen. It was a shot of Jim coming back to the ship, less than half an hour ago, evidently taken by some hidden camera outside. It ran through once at normal speed, then started over in slow motion and kept repeating.

"Notice anything?" Madden asked softly.

Jim frowned. "Well, I remember hesitating before I stepped onto the ladder."

"Do you remember," Madden asked, "why you turned and looked up the lake? You weren't looking at anything nearby."

Jim clamped his mouth on a retort and watched the screen once more. Now that he noticed it, there was an instant when he turned his head and stared. The nameless dread rose in him again. He fought to control his face and said, "No. I'll . . . have to think about it."

Madden said, "Well, you'll have a few minutes, then we're going up-lake to see if that jogs your memory."

If only the dream-memories would stop billowing around in his skull and let him concentrate on what was real! He remembered bending to pick up small objects somewhere beside this lake. Had those been the figurines? All he could say for sure was that when he'd come out of the delirium the seven

figurines had been in the ship; each representing, with an exquisite and inexplicable art, one of the dead crewmen. He hadn't been able to resist them then. Would he have, if he'd known that men would be murdered for them, fortunes squandered on mere rumors of them? He doubted it. There was more to them than mere monetary value.

His thoughts were wrenched back to the present as a gunman banged on his compartment door. "Madden wants you outside."

Madden and four of his men waited, armed with beamer rifles and sidearms. Madden said, "We'll go up the left side of the lake. That's where you were looking. You lead."

Jim, unwilling to show his fear, turned and went along the dam. He noted that one of the ships overhead had come lower and now drifted slowly with them.

To get to the side of the valley they had to cross the river at that end of the dam. He went down into the ruins and shoved through brush to where the stream spread out and was shallow. Madden and three of the men followed him closely, while one stayed a little behind. Jim found a way across, from boulder to boulder, which he seemed half to remember, then turned upstream, trying to fight off the

dread that threatened to paralyze his mind.

This was late summer, and a sandy strip lay exposed between the water and the crumbling wall of the lowest terrace. Now and then they had to push through reeds. The urgency of his situation was pressing in upon Jim now. He had little hope that Madden would let him live, however cooperative he was. It would be so much more logical to shut him up permanently. Now and then he glanced back. After half an hour's walk, Madden was showing impatience.

Then, a few minutes later, they rounded a bend and he saw a wooded promontory ahead. He paused, remembering suddenly that an old ramp came down there, across the terraces from the valley's rim.

He found that he remembered the ramp in detail. Once, it had been made firm with heavy blocks of stone, and probably paved over. Some of the stones were exposed now, and some were displaced, and twisting gullies had formed, where water came down in the wet season. Along the edges, much soil had washed down from the terraces to form the promontory, which projected a hundred feet or so into the lake and was wooded to the tip.

Hope leaped in him. If he

could get among the trees . . . But as they neared, Madden said, "Hold on a second." He was holding a communicator to his ear, listening to something from the ship overhead. Presently he lowered the communicator and looked at Jim. "They say there's something peculiar just ahead."

They punctured Jim's hopes by making him wade around the promontory instead of crossing it. As soon as he was beyond, he saw the thing up the shore.

It was a cluster of large plants, on a mound at the water's edge that looked too regular to be natural. There were two dozen or more vertical stalks, each three or four inches thick at the base. Every eighteen or twenty inches up each stalk was a disc-shaped horizontal leaf, two feet in radius. Birds and other small creatures rested on the leaves. As he stared, a thing like a frog with flying membranes leaped from a leaf to soar out over the lake and finally plop in.

He knew that this was the source of his dread, but somehow he didn't feel any urge to flee. It was as if it were something he could surely outrun, if he had plenty of room to run in, and he wasn't afraid to approach fairly closely. He did that, staring at the fantastic blossoms fifteen

feet or more above ground. They were like monster orchids; some solid hues, some striped or dappled. All colors, bright or modest, were there. Each bloom sent up a number of thin wands, also multi-colored, that coiled and twisted with unmistakable life. Several of the flat transparent things drifted about the blossoms, and the wands teased at them playfully. There was a strong perfume in the air, like snapdragons but sharper.

He stopped forty feet away, tingling with excitement. One of the gunmen came up beside him, stared, then suddenly grunted and took a step forward, pointing. "Look! Among the stalks!"

The glittering thing was half-buried in the dirt, but it must have been the size of Jim's forearm. It was a statuette of some kind of animal. Eight years before, aerial pictures had showed herds of grass-eaters and various predators, on the rolling lands above the valley's rim, but this didn't look like any of those. Jim itched to hold the thing in his hands, but restrained himself. The gunman wasn't so cautious. He took a step forward . . .

Jim must have known what to expect, subconsciously, for he whirled and ran, bent over, protecting his face and hands. Madden shouted something. A few small pellets or seeds (Jim vi-

sualized a shower of them behind him) flew past him.

The gunman cried out, then, as Jim turned, chuckled sheepishly. "Scared me," he said, wiping at his cheek, "I thought —"

Suddenly, his face twisted in terror. He uttered something between a sob and a scream, and began to run. He stumbled into the water, went down and floundered, mouthing odd sounds. Madden and the other three were moving toward him, and Madden was shouting into the communicator. Then the stricken man stood up and waded back to shore, silently, face slack. Ignoring the others, he walked like a zombie toward the plants.

Madden yelled at him but he gave no sign of hearing. A shimmer began to form around the stalks. The blossoms drooped and shrank, withdrawing into the ground. The shimmer grew, broke away, formed a cloud as of very fine mist. It drifted to meet the zombie-like man.

Madden sent a rifle beam into it, causing an agitation, but the cloud kept coming. It settled over the man, who contorted and began to struggle. His mouth was open as if he were screaming, but no sound escaped. His clothes began to char and smoke. His skin turned red, then black; puffed and blistered; showed

pink cooked flesh where it split. He was dead now, hanging suspended in the cloud and turning slowly as if weightless. The cloud moved back and hovered over the mound. More rifle beams hit it, but didn't seem to hurt it much. A heavy ship's beam came down, nicked it, and did seem to hurt.

Madden shouted into the communicator, "Don't shoot!", evidently concerned for the statuettes. There was only a charred skeleton left in the cloud, with a few metal objects that glowed red. Then the bones were gone, and the metal vanished, and there was only one small point of incandescence. The cloud let that fall to the dirt, then began to split up and seep into the ground. Soon it was gone.

The incandescent thing, about the size of a man's little finger, was cooling. Jim knew it would be a figurine with all the vanished features perfectly etched on its face.

Madden, eyes dead, held his rifle steady on Jim as they backed down the shore. "So you suckered us after all," he said softly. "This is far enough. Talk."

Jim realized that now his only chance was to pretend knowing more than he did. Otherwise, he'd be no more use to Madden. "It happened so fast," he said. "I didn't expect him to go closer.

I—you can outrun the things. I was going to tell you that."

Madden grinned scornfully. "It won't wash. I'm not going to be so gentle with you from now on. Are there more of them?"

Jim nodded. "We'd better not stay here."

Madden glanced around, then up at the ship which was setting toward them. "Where would they be? Among the trees?"

Jim thought fast. Instead of answering, he let his eyes flick nervously toward the lake. If Madden had the ship pick them up here, Jim was finished. If he could get Madden to move back to the promontory . . .

Madden looked back at the mound, where the statuettes lay unmoved. "Go get them," he said.

Plain death, from a rifle beam for instance, Jim could face without panic; but it took all his will power to get his legs moving back toward the mound. Would the thing come out again, or was it sated for the time being? Had one of these plants consumed all seven of his men? He stepped gingerly onto the mound, which looked freshly plowed now. He picked up the big statuette first, then hurried to get the five others of smaller animals and the figurine of the man, which was barely warm now. He re-

treated, stuffing into pockets all but the biggest one, which he carried. When he was a safe distance away he raised the thing to his ear, ignoring Madden, and thumped it with a finger. It rang like the finest crystal glassware, throbbingly, persistently. The sound permeated his mind, and it was as if he dreamed . . .

Summer, and sun warm on my fur, and good green leaves to eat. The young of the grass-eaters frisk about and make bleating sounds, for they too feel the goodness of being alive. They'd better beware of that predator that crouches at the edge of the trees, waiting for them to blunder near. He glances warily at me, for he knows the might of my big taloned paws and the crushing weight of my body and the grinding strength of my big teeth.

But what is that, drifting across the grass? One of the Things! I must run! But oh, I am a slow creature, and my limbs are weak with fright, and now it is upon me! Oh—OOOH!

Jim thrust the thing away from him and stood trembling and sweating. The agony and terror were so vivid . . . He looked up and found Madden watching him intently.

Jim's mind went into high gear. He pretended nervousness, glancing behind him and up the

lake. When he reached Madden he stopped, but acted reluctant. Madden looked around. To pick them up here, the ship would have to land in the water. Madden nodded to him to start back toward the promontory. Jim moved, pulse thumping.

Now if they only didn't insist on his wading around it again . . . He hadn't acted afraid of the water the first time; would Madden see through his act now? There was one difference. He carried the statuettes now. He turned, made a vague gesture of offering them to Madden, trying to look frightened and dazed. Madden grinned. "You carry them, in case the owner comes after them."

At the promontory he started out along it slowly, eyes on the water. He glanced at Madden and stopped. Madden said, "Go on across," and moved up, with the three men, until the rifles were nearly touching Jim. Jim was sick with hopelessness. How could he hope for anything?

Then he noticed that the ship was following overhead, and that its shadow drifted along just behind them. His heart jumped. Maybe . . . But he needed some other distraction, to set that up.

He climbed the side of the promontory and picked a way

among the trees. He pretended to stumble and, leaning for a moment against a tree-trunk, unobtrusively got one of the smaller statuettes out of a pocket. He went on, holding the thing in front of him. He was nearing the other side of the promontory; he could see water ahead. It would have to be now.

He forced his way through some brush, and, as soon as it concealed him below the shoulders, flipped the statuette ahead of him. Would it reach the water? It did, just barely. At the splash he halted and crouched as if startled. He half-turned his head slowly, gave Madden what he hoped was a terrified look. Then he let his eyes shoot past the men and go wide. "Look out!" The ship's shadow fell upon the trees. They whirled, rifles swinging up, and he was running, bent so the brush would hide him, up the promontory, trying to put tree trunks between himself and Madden.

Madden shouted, and beams sliced around him, blasting chunks out of the trees. One scorched his right cheek and he dodged desperately and went on, legs pumping. He risked turning right, and it was lucky he did for a heavy ship's beam crashed where he'd been headed. He took the second terrace up and pushed along it as fast as the dense

undergrowth would let him. He felt exultant now, though his lungs ached terribly. The trees hid him completely from overhead and from all sides; and the sound of the ship's weapons, blasting along the promontory, covered any noise he made.

Madden must have realized that, for he shouted and the firing stopped. Jim stood still for a moment, but there was a crackling of trees on fire behind him, that would mask any small noise he made. He pushed on slowly, and found a chance to climb up one more terrace. He thought he'd best get as high as he could, and as far up-lake.

For the first time, he realized that he still clutched the biggest statuette, and had the others in his pockets. Was that good or bad? If he'd dropped them in the open, Madden might take them and not bother about Jim. Now, he'd be thinking of getting them. On the other hand, maybe he wouldn't let the ships fire for fear of ruining them.

The sound of the forest fire was falling behind, but then he heard similar sounds, faintly, ahead. He stopped again and listened. The sounds were coming from all directions. Suddenly, he understood. Madden had called the other ships down, and they were etching a ring of fire around him to pen him in.

The gray birds, recognizing something wrong, were flitting back and forth in agitation. For a second Jim thought he could feel heat, then he recognized that it was only the ache in his scorched cheek. He pondered which way to go. The fire would probably burn up the slope faster than down. He climbed another terrace. Maybe he could find a cave or something, hole up and let the fire burn past him, then escape. It was only an hour to sundown. But of course the ships had floodlights.

Madden's amplified voice boomed from somewhere above the trees. "Frentrup, you haven't a chance. I'm going to make you one more offer. There's a level spot on the ramp, at the fourth terrace from the bottom, where there's no fire. Bring the statues out and leave them, and we'll leave you here alive. That'll suit me just as well as killing you."

There was no more for fifteen minutes, while the fires got closer. Then Madden added, "Don't think I'll worry about damaging the statues. We've spotted more, and I can pick up all I want. I'd just rather save the trouble. Bring the ones you've got to the ramp. We'll leave you a pistol and some supplies. Yell if you agree. We'll hear you."

No doubt they would; they'd have sound pickups aimed around. Jim didn't believe Madden would let him live, and anyway, he wasn't going to crawl for Madden. He kept looking for a cave. The valley was almost in dusk, and the glow of the fires was beginning to show. The birds were all gone, and other forest creatures were running about in fright. Something big charged by Jim, snarled, and went on.

Madden didn't speak again, and Jim went on with his search. There were hollows beneath boulders of the old terrace walls, but none looked good enough. He was getting worried; it was dark and his eyes stung from the smoke. He found one hollow that would almost do, but decided to look farther.

A few minutes later a beam crashed into the trees scant yards away, seemingly at random. Each started a fire, and each fire made the smoke worse. Desperate, he ran back to the hollow he'd rejected, knelt and scooped out dirt to make it bigger. His eyes were streaming now, and fits of coughing tied him in knots.

A beam crashed on the terrace above him, and a burning branch came down. He threw it off and rolled frantically in the moist dirt, but his clothes were burned

through and there was a bad burn on his neck. He squirmed into his hole and pushed dirt up before him for protection. A big limb came down, one mass of flame, and sealed him in. He dug with fingers that bled and heaped up dirt, twisted and tried to find breathable air in the hole, but a fit of coughing seized him so that he was paralyzed.

His back stung like the devil, and his lungs felt as if a blowtorch had been turned into them. If he got through this he'd have to find mud, or some animal grease to smear on his burns. But he was beginning to feel that he wasn't going to get through. He was almost in a coma from the coughing. "Damn him!" he groaned, "Damn him! I hope he —"

Then it was as if something moved physically inside his skull, and a calm thought came, "I'll take over now." Whatever was truly Jim Frentrup screamed, fought a brief desperate resistance, and was overwhelmed.

I can change safely, he thought, but I haven't enough substance to do much. I could reach unburnt foliage, but that's such lean fare. Animals? They've all fled. The men in the ships? Too dangerous, all by myself.

He consumed parts of the Jimbody, bolstering the brain and

whatever else was required for temporary life; materialized a root-tip and thrust it down into the soil; sent out thin filaments, searching. A few feet down he found an inter-colony contact-root half an inch thick. He absorbed back his other filaments and grew them into the right one until it would carry a message. *Brothers! Attend!*

Who are you? came a drowsy reply, *You feel odd.*

It is I, who entered the intelligent animal and went into the sky. Henceforth, I wish to be called Jim-entity. There is danger! There are more of the animals — they are called 'men' — and they have weapons that can hurt!

Another awareness joined in, half awake.

We are aware of them. I dined upon one. They will go away soon, in their hollow metal things that fly.

Attend! Jim-entity demanded, insistently. There are a thousand worlds full of them, and they have weapons that can blast us to atoms! We must seize them before they go!

They were coming full-awake now, more of them joining in. Some of them, feeling his weak-

ness, sent power flowing along the root, and he drank it in thirstily. Then Old One came awake; he who ate little, slept much, and who, it was whispered in awe, had come long ago from the sky. His feel was amused. *So; the young traveller has returned. What did you learn beyond the sky?*

I learned much. Marvels, which there is no time to describe; and feelings, which are strange things but which I would not give up now. I have learned to love. And to hate.

Power was throbbing along the root now. He said, *I will send a few small clouds first, to enter the ships unseen, for insurance. Then we will form more clouds to carry the seeds, and try to capture all the men. We can decide later which ones to consume and which to hide in, so they will take us to others of their kind.*

Good! approved the Old One, more vigorously than anyone had ever heard him speak, *It is time we moved again. We have faltered here long enough.*

Someone else said, *There will be many fine statues.*

— C. C. MacAPP



War Against The Yunks

by KEITH LAUMER

Illustrated by MORROW

*He was a combat soldier in a
war he had never expected—
a war where he was the enemy!*

I

Professor Peter Elton swung his machete half-heartedly at a hanging vine as thick as his wrist; the blade rebounded with a dull clunk. He lowered the black pigskin suitcase in his left

hand to the spongy layer of rotted vegetation that covered the ground, took out a large handkerchief with a faded machine-stitched monogram belonging to a fellow customer of the Collegiate Laundry and Cleaners, and mopped at his face.

"Constable Boyle," he called to the stoily, khaki-clad man whacking at the dense verdure ahead. "Are you sure you know where we're going?"

Boyle turned, flicked the sweat from the end of his nose.

"Absolutely, sir," he called cheerily. "Chased that ruddy great jaguar right through this same ruddy thicket. Lost him at the river's edge — the Choluteca, that is. That would be about five miles ahead."

Elton groaned. He hobbled to a convenient log, sat, pulled off his brand-new hiking boots, and began massaging his foot.

"But we don't have to go all that way, sir," Constable Boyle reassured him. "It was on the way back I stumbled over it; it can't be far from where we are at this moment."

"I can't help recalling my last ill-advised venture into the brush," Elton said. "An unspoiled Aztec site just twenty miles south of Taxco. We reached it after a fourteen hour burro ride. After clearing away the greenery, I uncovered a Dr. Pepper sign, several hundred beer bottles, and the principle chassis members of a Model T Ford."

"This is the real thing, sir," Boyle said heartily. "Just this column, like, sticking up; bloody great slab o' rock the size of a Bentley Tourer."

"And you're sure it shows signs of human handicraft?"

"Oh, that I can guarantee, sir." Boyle got out a well-worn hip flask, passed it across to Elton, who uncapped it and took a healing draught. "I hope you're not thinking of packing it home as a souvenir," Boyle went on. "You'd need a ruddy derrick."

"Nothing like that, constable," the professor said. "I've already told you I merely wish to examine it; make a few tests."

"I understand; that's what that bloody great case is in aid of . . ." He nodded at the heavy piece of expensive-looking luggage at Elton's feet. "I wish you'd let me carry it for you for a bit."

"No, no, I'll see to this, constable." Elton put a protective hand on the case. "The device I have here — which I developed myself — may well revolutionize the whole art of archaeological dating."

"That's a bit over my head, sir," the constable said.

Elton took another swig from the flask and handed it back. "With the chronalyzer —" he patted the case — "I'll be able to establish the ages of stone artifacts which have hitherto defied analysis. You see, the incidence of naturally occurring high-velocity particles on exposed rock

surfaces induces sub-microscopic changes in the internal crystal-line structure of the material; naturally, when a cut is made in a stone surface by man —"

"Who cares how old a blinking rock is?" Boyle cut in. "Now, my idea is, you can vet this thing, say whether it's worth the trouble of doing a bit of digging; then if we turn up anything — say a few solid-gold chamber pots —"

"Now, constable, I'm not interested in visionary schemes to defraud the authorities."

"Defraud, sir? That's rather a harsh term. As for meself, my salary as a blooming game warden is —"

"Is none of my business," Elton pulled his boots on and got to his feet. "I suggest we resume while the sunlight is good."

"As you say, sir. But it seems a shame, considering the fact that we're a good fifty miles from Tegucigalpa and there's boats on the river to be had for a song."

"I don't sing very well," Elton said severely. "I have an adequate position with a reasonably good, small university and a full professorship in the offing if my chronalyzer proves out. That is the sole purpose of this expedition."

Boyle squinted at the sun. "We'd best be moving if we want to be back to Yuscaran tonight."

II

Late sunlight was filtering through high treetops where green parrots had set up a raucous evening serenade among the orchids when Boyle stumbled into a tiny clearing, yelled "Ha!" and pointed.

Elton came up beside him, his once natty bush jacket hanging damply, his solar topi on backwards, his shins scratched. Before him, a two-yard thick cylinder thrust up from a tangle of flowering vines, its weathered surface almost obscured by a growth of grayish moss.

"Well, it appears to be artificial, just as you said," Elton commented. He gazed at the ten-foot high monument, circled it, studying the surface.

"Not much over a thousand years old, I'd guess," he said. "The Mayan stone-workers —"

"Why not try your apparatus on it and find out for sure?" Boyle suggested. "Then perhaps we might do just a bit of digging."

"No digging," Elton said firmly. He squatted by the case containing the chronalyzer, noting the scars and scratches in the once-splendid leather. He remembered the dinner the previous spring at which the luggage had been presented to him, along with a nice little check, on



WAR AGAINST THE YUKKS

the occasion of his award-winning paper on *Some Evidences of an Advanced Technology Among Pre-Columbian Central Americans*. What would his colleagues say, he wondered, opening the case, if he returned from this trip with proof of the chronalyzer's success?

"Crikey," Boyle said, leaning over to peer into the case. "Looks like the insides of a redddy telly set."

"Oh, it's quite simple, really," Elton said, erecting the folding tripod he had taken from the case. I merely expose the surface in question to radiation of specific wave-length, and the resultant refraction patterns are interpreted by the sensor unit; the results are read directly from the screen here. Later, of course, it would be a simple matter to devise a direct-reading scale."

He lifted the chronalyzer from the case, settled it in position on the tripod, then flipped a switch, and checked indicator dials. Power was flowing at the correct levels. He sighted through an eye piece, fine focused the crystal-guided light source, then flipped down the toggle switch which bombarded the target with high-range ultra-violet. A beam of pale light made a gray spot on the curve of mossy rock. The constable stood at Elton's shoulder, staring at the wavering green

glow of the four-inch square indicator screen, watching the wave-forms dance.

"What's that wiggly line mean?" he inquired.

"Hmmm." Elton studied the pattern, compared it with the scale taped to the panel above the glass. "Curious; the surface seems to date about eight thousand years back. That is, it was exposed to the open air at about that date."

There was a harsh, grating sound, a sense of vibration deep underfoot. Elton stepped back, looking startled. Before him, the stone seemed to tremble . . .

"Here, what's that?" the constable's voice had a note of surprise. "You feel that, sir?"

The vibration was very perceptible now. The stone was quivering visibly. Elton hastily switched off the chronalyzer. With a loud *click!* A hairline crack became visible running from top to bottom of the looming cylinder. The crack widened; curved panels were opening out, sliding silently on oiled bearings. A bluish light winked on, revealing an interior chamber lined with fittings of an incomprehensible complexity.

"It's not . . . not one of these missiles, sir?"

A loud beep! came from the

interior of the apparition. Elton jumped.

"Ascrabilik ahubarata" an inhuman, metallic voice said from inside the capsule.

"That's not Rooshian, is it, sir?"

"Definitely not Russian," Elton said, backing away.

"You had me fooled, sir," Boyle said. "Nice bit o' camouflage it was, too." He chuckled. "I'd of wagered you'd never been here before; a jolly good act you put on."

"Thank you, constable," Elton said in a squeaky voice, mentally picturing squads of armed security men pounding through the jungle to take him into custody. "*But how,*" he pictured himself asking, "*was I to know that there was a secret minuteman silo under this old rock . . . ?*"

"You scientist blokes," the cop said. "You're full of surprises." He shook his head admiringly.

"Yes," Elton mumbled, going into motion suddenly. "Well, thanks for your cooperation, constable. We may as well be running along now." He lifted the chronalyzer from its tripod, lowered it into the case.

"You're going to leave it like this, sir?" The constable's eyebrows went up.

"We're pressed for time," Elton said hurriedly. "We don't

want to be caught out in the jungle after dark . . ."

"Ascrabilik ahubarata," the voice said again.

"Here, sir, where's the voice coming from?" The constable poked his head inside the blue-glowing interior, his voice taking on an echoic quality. "What's—" A sharp buzz cut him off in mid-sentence. He stiffened, his arms jerking out from his sides; a dazed look spread over his face. A pair of bright metal clamps had extended from a receptacle, locked into the constable's head. Elton jumped forward, grabbed his arm, and hauled at him. The buzz stopped abruptly, the clamps retracted. The constable staggered back, his hands to his head.

"Wh-What happened?" he choked. "Felt like my ruddy brains was being wrung out like a bar-rag!"

"Mobile Command Center Ten ninety-four, standing by for instructions," a harsh, high-pitched voice with a Middlesex accent said from inside the capsule.

"You might've warned me, sir," the constable said in a hurt tone.

"Uh . . . well, after all, these secret installations . . ." Elton improvised. "But I'll explain it all as we hike out."

"MCC Ten Ninety-four, await-

ing instructions," the voice said again. "On five minute stand-by alert, counting . . ."

"Where's the chap manning this show, anyway?" the constable asked. "They oughtn't to go off and leave it like this."

"Probably they just stepped out for coffee. No concern of ours, constable. Now, if you'll just give me a hand with the bag."

"Abandoned their post? Very strange, I'd call that, sir. Un-British. But then I suppose they're Wogs."

"MCC Ten ninety-four awaiting instructions. Battle status, active."

"You hear that sir? Blimey, do you suppose it's started? I knew that we couldn't trust those Russians!"

"Just a routine exercise, I should think," Elton soothed, edging off into the surrounding undergrowth. "Now if you're ready—"

"Here," the constable said loudly, addressing his remarks to the capsule. "Constable Boyle here. What's this about a battle?"

"Battle report follows," the voice answered. "First Grand Fleet, annihilated, casualties total; Second Grand Fleet annihilated, casualties total; Third Grand Fleet . . ."

The voice went on, reeling off statistics.

"This is It, right enough!" Constable Boyle smacked a fist into his palm. "A hell of a fight going on somewhere . . ."

"... Grand Fleet annihilated, casualties total," the voice droned on. "Sixth Grand Fleet, casualties ninety-eight percent; surviving units retired to defensive dome at station 92, under Yukk siege —"

"Ever heard of these Grand Fleets?" Boyle called to Elton. "That would be your lot, I reckon?"

"Certainly not," Elton said quickly. "Just code names; you know; the Blue Army versus the Red Army —"

"Never had any use for bloody Reds meself," Boyle stated flatly. "Well if it's not you Yanks, it must be British units involved. Always knew we were keeping a secret weapon tucked away someplace. Who'd have thought it'd be here in Honduras? But our chaps are in trouble, from the sound of it."

"... Tenth Grand Fleet; Mobile Command Center Ten ninety-four standing by."

"Ten ninety-four? That's this apparatus here!" Boyle said excitedly. "And its ruddy crew's stepped out for tea!"

"If we hurry," Elton called cheerily.

"I don't like the sound of this,"

Boyle said. "Looks like the bloody Reds have had all the best of it, so far." He raised his voice to shout into the interior of the capsule.

"What kind of shape are the other blighters in?"

"Yukk Primary Echelon, annihilated, casualties total; Yukk Secondary Echelon, heavy casualties. Yukk Dreadnought *Abominable* operational, standing by off station 90 —"

"Yukks, eh? Code name for the Russkis, shouldn't wonder," Boyle said. "And their dreadnought's got a group of our lads hemmed in at someplace called station 92. They'll be wanting a spot of help, sir!"

"Elements of Sixth Grand Fleet under siege at station 92. Besieging Yukk Dreadnought heavily outweighs units in ton/seconds firepower."

"We've got to get cracking, sir!" Boyle yelled. "We can't let the Bolsheviks wipe our chaps out!"

"Awaiting instructions," the voice said. "Three minute alert."

"Here, where's your station complement?" Boyle demanded.

"Station personnel departed to conduct local reconnaissance," the voice stated.

The constable whirled on Elton. "It's clear enough, sir; these

chaps have buggered off and left their mates in the lurch. Lucky we happened along. It's awaiting our instructions!"

"Now, constable," Elton said reasonably. "Surely it's not talking to us —"

"Who bloody else? It popped open when we came along, didn't it?"

"I suppose my U-V triggered something," Elton muttered.

Boyle looked suddenly knowing. "Ah-hah, I think I see, sir. Security. You can't take action while I'm hanging about."

"Well, constable," Elton grabbed at the straw, "you don't expect me to violate NATO Cosmic security?"

"I'll never breathe a word sir, cross my heart!" Boyle was standing at attention, chin in, toes out. "We've got to give them a leg up, sir!"

"Out of the question, constable," Elton said, looking around for the first signs of flashing red lights, whooping sirens, and pouncing military police.

"You're a cool one, sir," Boyle said stiffly. "Have to be, I suppose, in the counter-espionage game. But it's not the British way to desert one's mates in time of need."

"One's mates? What in the world are you talking about? We've stumbled into some sort of war games, constable; if we're

here when the authorities arrive, we'll end up in a maximum-security prison!"

"I'm saying it's the real thing, sir. Our boys are under fire. They're counting on us, sir!"

"What the devil do you expect me to do?" A strident note had entered Elton's voice, reminding him of his last interview with Dean Longspoon, in which the irascible department head had suggested that Elton spend more time in the classroom and less in what he termed exotic peregrinations. How right, Elton thought, the dean had been.

"We'll fill in for these blinking tea-drinkers!" Boyle proposed. "And I'll have a word for their superiors when this is over!"

"But — but —"

"Two minute alert," the voice stated.

"I always thought when the chips were down you Yanks would stand with us," Boyle said. "I'm going in — alone, if I have to."

"But — it might be dangerous."

"Chance we have to take," Boyle said curtly. "Coming?"

Elton came slowly across to Boyle's side, looked into the dim blue interior of the capsule, at a maze of pin-point indicator lights, conduits, push-buttons, fittings.

"Hmmm. Interesting layout.

New type oscilloscope, subminiature fluorescents —"

"Awaiting instructions; one minute alert before reverting to inactive status," the voice said.

"Go ahead, sir!" Boyle urged "I'm right behind you!"

Elton looked around; there were still no signs of aroused security forces bearing down. He put the suitcase on the ground, sighed, and stepped hesitantly through the open entry.

III

At once, a folding seat deployed from the floor, nudged the back of Elton's knees, and he sat abruptly. Boyle crowded in behind him. Elton stared at the array of tiny dial faces and toggles, packed together like a display in a bargain jeweler's window.

"Say, you've got to hand it to those Air Ministry bods," Boyle said. "Not half crafty, that lot. Not a word in the papers about all this." He was looking around admiringly at the wilderness of quivering needles.

"Thirty second alert," the voice stated.

"Wonder what that means?" Elton frowned.

"In twenty-five seconds, Mobile Center will revert to permanent inactive status if not activated," the voice said.

"You mean — we'll be out of the fight?" Boyle expostulated.

"Affirmative. Action must be taken within prescribed time limit, in accordance with standard anti-Yukk operational procedures."

"Suppose we don't?"

"Mobile Center will detonate. Fifteen second warning."

Elton started out of his seat. "Fifteen seconds — let's get out of here!"

"We can't sir!" Boyle caught his arm. "It's too late now to run! If it blows, it'll take us to kingdom come!"

"What'll I do?"

"Anything, sir! Just jab a button at random!"

Elton dithered, then lunged for the panel, depressed a fat red button directly before him. Instantly, metal bands snapped around his mid-section, clamping him to the seat. Behind him, Boyle grunted, similarly restrained.

"Prepare for immediate jump to Battle Sector," the voice said emotionlessly. The curved door slid shut with a smooth sigh. The blue glow died, leaving only the jewel-sparkle of the instruments.

"Hold on here," Elton yelled, tugging at the seat belt. There was an abrupt jar, an instant's pause — then a silent concussion that seemed to burst painlessly

inside his skull. Boyle gave a choked shout — then all was silent and still again.

"S-sir?" Boyle got out.

"What . . . happened?" Elton managed.

"Sir, I've got a feeling . . . we're floating, sort of."

"**N**onsense; the thing malfunctioned, obviously. Whatever was supposed to happen didn't. Perhaps it was never intended to. I'm beginning to suspect that we're the victims of the most idiotic practical joke of the decade!" Elton tugged at the seat clasp. "Now I suppose we're trapped here until they decide to come along and —"

"On station, Battle Sector Nine," the voice announced. "Request permission to deploy view screens."

"By all means, deploy the view screens," Elton said wearily. "And by the way, just who the devil are you? Where are you speaking from? What's this farce all about, anyway? My name is Elton, and I demand —"

"This is the Lunar Battle Computer," the voice said. "I am positioned nine point three four two miles under the Lunar surface feature known as Mount Tycho. At your instruction, I have placed Mobile Command Center Ten-ninety-four on station in Battle Sector Nine, four

thousand miles off Callisto, on an intercept course with the Yukk Dreadnought *Abominable*. Request permission to deploy forward batteries."

"You mean — you really — I mean —" Elton tried twice to swallow, made it on the third attempt. "This is all some ghastly joke?" he croaked.

"Negative," the voice said flatly. It seemed to issue from a small slot set among the flashing lights — which were now blinking with renewed enthusiasm. A large amber X in mid-panel winked on and off frantically.

"Callisto," Boyle said. "I've heard of it. Somewhere near Jamaica, I believe."

"Someone's idea of humor," Elton croaked. He managed a stifled laugh. "Why, if we were really four thousand miles off Callisto, we'd be hundreds of millions of miles away deep in space."

"Space, sir?"

"Callisto is —" he swallowed — "one of the moons of Saturn — or is it Jupiter?"

"Jupiter," the voice said tonelessly.

"Jupiter? Well, now, I knew our lads were holding something back," Boyle said complacently. "You Yanks and your moon shots are all very well, but here we British are, all the way out on Jupiter. Goes to show . . ."

"Goes to show what?" Elton yelled. "Suppose this thing knows what it's talking about? Do you know anything about piloting a satellite . . ." his voice trailed off in a squeak. Two translucent panels which had slid down from slots above, opened out, glowed briefly, then snapped into the crystal clarity of the finest photograph. Against a background of utter black, blazing points of light flared and sparkled. To the left, a brilliant curve of light like an enormous full moon edged into the picture. The screen above showed a similar scene, with the familiar tiny ringed disc of Saturn glowing, bright-edged, off to one side. In the center of the screen a moving blip glowed.

"There you are," Boyle said proudly, indicating Jupiter. "British soil, the whole lot."

There was a loud *ping!*

"What was that?"

"Yukk suppressor rays have locked on Command Center," the voice said in the same emotionless tone. "Likelihood of immediate salvo fire."

"Fire? You mean they're shooting at us? Goodness. Who would want to do that—?"

"Yukk dreadnought on closing course," the Lunar Computer announced. "Request instructions."

"Take evasive action!" Elton yelled. "Get us out of here!"



"Drive mechanism non-functional in field of Yukk suppressor rays," the voice said.

"Uh—fire the forward batteries!" Elton yelled.

"Guns non-operative in field of Yukk suppressor rays."

On the screen the blip grew; it swelled visibly, bearing down at a headlong clip. Elton could make out details of the image now. A clumsy, double-pyramid shape, slab-sided, angular, rushing at him from dead ahead.

"Nothing for it but to ram, sir!" Boyle yelled. "God save the Queen!"

Elton lurched forward as the capsule seemed to break suddenly. The pressure grew. Elton

grunted as the seat clamp cut into his stomach.

"Yukk tractor rays now grappling Command Center," the voice said indifferently. "Request permission to self-destruct."

"Not bloody likely!" Boyle bawled. "We're not ruddy Kami Kazis!"

The pressure slacked off. The forward screen went dark, filled by the bulk of the Yukk dreadnought. In the rear screen the stars glittered and winked. A tremor ran through Elton's seat—a sharp jar, a sense of sliding, then silence again.

"We—we've stopped," Elton said uncertainly.

"What do you suppose it means, sir?" Boyle said in a strained voice. "I'd have wagered a fiver we were bound to collide with that monster."

"We're practically bumping into it now."

"We must be hove to alongside," Boyle said.

"I . . . I suppose they'll be along to collect us any minute now," Elton said.

"Captured," Boyle said disgustedly. "Without firing a shot."

"By the Yukks," Elton added. "We'll be brainwashed . . ."

"There'll be help on the way, sir," Boyle said cheerfully. "When the chaps we're filling for get back and find their machine missing, they'll be through to Air Ministry like a shot."

"I wonder what they're waiting for?"

Elton stared at the dark screen, unable to make out details of their captor. "I'd like to get on to the name-rank-and-serial-number part, and possibly get in touch with the Red Cross."

"Pity we're not armed," Boyle said. "We could have put up a spirited defense, and maybe taken a couple of the blighters with us."

Elton didn't answer; he was swallowing hard, running over speeches:

I am a civilian, captain; as a non-combatant, I insist — No,

that would be hard to put over under the circumstances. *How about: Well, fellows, the fortunes of war, eh? Wonderful job you did at Stalingrad . . .*

"Maybe if you twiddle the knobs a bit, you can see something of what's going on out there," Boyle suggested. Elton tried the controls beside the dark forward screen; suddenly it lightened; a pitted surface of iodine-colored metal curved before them, sliding slowly past.

"That's better," Boyle muttered. "Don't imagine the Reds had anything like that! Bloody vast thing, isn't it?"

"Bigger than anything we've got," Elton said. "Alien looking, isn't it? I wonder if Washington knows about this?"

"I should think Whitehall has likely let them in on it, sir."

"Listen," Elton said. "Do you suppose that we somehow eluded their radar? After all, we're rather small, and they may have been expecting something their own size."

"You may have something there, sir," Boyle smacked his fist into his palm. "Hard lines we can't activate this blasted pogo stick we're sitting in."

"Look here, Lunar Computer," Elton said. "Isn't there a chance you can get us out of this spot we're in? It appears —"

"All systems now functional," the voice said.

"What! Why didn't you say so!"

"Data not requested," the voice snapped.

"Well, what about it. Can we jump away from here — get back where we started from?"

"Yukk suppressors are activated by high-velocity bodies moving within sensitivity range of instruments," the voice said flatly.

"Suppose we sneak away? Just sort of edge off-stage, so to speak?"

"What about the Commies, sir?" Boyle remonstrated. "If you're feeling a bit better now, we can renew the fight."

"Fight? Look here, Boyle, this has gone far enough. I must have been under the influence of alcohol. What kind of fight can this — this wandering phone booth put up against that Leviathan? No, thank you, I'll be happy just to get back, pay my fines, and leave quietly tomorrow aboard the *S.S. Togetherness* as planned —"

"Sir! Look there!" Boyle's fingers dug into Elton's arm; he pointed to the screen. In the section of the Yukk hull passing across the screen, a vast, gaping rent showed. Inside, Elton caught a glimpse of twisted structural members, buckled deck plates.

"No wonder they paid us no heed!" Boyle blurted. "Looks as though they had a spot of bother of their own." A second vast wound in the immense hull drifted into view. Great, blackened tubes that could only have been weapons hung in their carriages, silent.

"Crikey!" Boyle commented happily. "They've jolly well had it!"

"They're still active enough to deactivate our guns, shut down our engines, and take us in tow," Elton said. "The crew are probably all in the undamaged part, ready to blast us at the first sign of life."

"What about that, Looney Control?" Boyle barked.

"It's Lunar Control," Elton put in.

"Affirmative," the voice said.

"You see?" Elton said.

"Are they on the lookout for us?" Boyle pressed on.

"Negative."

"Why not?" Elton demanded.

"There are no survivors aboard the Yukk ship," the voice said casually.

"No survivors?" Boyle and Elton echoed together.

"Then," Elton said perplexedly, "who's been operating the suppressor, and tractor rays, and —"

"Yukk defensive armaments

activated automatically at the approach of possible hostile bodies."

"Now you tell us!" Elton sagged in his seat. "Well, Boyle, I think that lets us off the hook. We can go back now."

"I wouldn't say so, sir," Boyle cut in. "What about those chaps under siege? We can't just go off and forget them."

"What siege? The Yukks have been wiped out. There's no one here to besiege them!"

"Perhaps they're not aware of their victory, sir! We've got to carry the good news to them. It'll be a feather in our cap, sir."

"I don't care for feathery caps," Elton said. "Let Lunar Control tell them, if it wants too — it seems to be damnably cagy when it comes to withholding information."

"All you've got to do is ask the right question, sir." Boyle's voice was smug. "After all, it's only a machine; admitted that itself. We're the only personnel here — and I say we have a duty to perform."

"All right, all right." Elton addressed Lunar Control. "Can you take us there — to wherever this Lost Battalion is supposed to be pinned down?"

"Station 92," the voice said. "Affirmative."

"All right, I guess we'll give it a try. But creep along slowly,

so as not to wake any sleeping electronic dogs. Where is this station 92, anyway?"

"On the surface of the moon Callisto."

IV

"Miserable place to be marooned," Elton said, staring at the bleak expanse of wan lit, cratered rock below. "Callisto is much too small to support an atmosphere, and at this distance from the sun I imagine the rock never warms much above absolute zero."

The ground was moving up swiftly; the screens swept the close ragged horizon, fixed on the black of the sky. There was a lurch, followed by a thump.

"We're down," Boyle announced. "All right, open up," he called. "And —"

"No!" Elton yelled — too late. The seat clamps snapped back, the doors slid open — and a breath of cool, perfumed air wafted in from outside.

"It's — but — how . . . ?"

"Contact at station 92," the voice said. "You are now within the defensive force dome."

"Oh, that explains it," Elton let out the breath he had been holding. "The dome keeps the Yukks out, and holds the air and heat in."

"Now to spread the good

word," Boyle said heartily. "Ready, sir?"

"I suppose you were right about coming over to let them know they've won." Elton stepped out, felt grass underfoot, sniffed the air. "My, won't they be delighted." He stared up at the heavens; Jupiter was a vast, pale crescent moon, glowing in banded pastel colors. Other, smaller moons moved visibly nearby. Vast numbers of fat, close stars glittered overhead.

"I wonder where they are?" Elton squinted into the deep gloom of the Callistan night.

"How many men have survived?" Boyle called to the capsule.

"Seven hundred and five individuals now occupy the redoubt," the slightly bored-sounding voice said. "None of them are Men."

"Did you say," Elton got out, "they're not . . . men?"

"Affirmative," the voice was bland.

"Blimey," Boyle said. "A bunch of ruddy Martians?"

"No wonder the Yukk ship looked alien," Elton groaned. "This is some kind of interplanetary war between intelligent oysters, or something. What are we doing mixed up in it?"

"Questions relating to organic motivations are not within my scope," the computer said.

"And the Yukks aren't Commies at all?" Boyle sounded disappointed.

"Negative, in the sense in which you employ the term; however, the Yukk practice a form of communal life, based on —"

"There you are, sir! Commies, as I said. These Reds are a crafty lot. As I see it, we British have made contact with the Martians, who've become our allies. It's a group of their lads out here, and it's our plain duty to carry on."

Elton scrambled back inside the capsule. "I don't know about you, constable!" he called, "But I'm leaving."

"Warning," the voice said. "Yukk batteries command entire volume of space within ten million miles. Any attempt to jump will result in approach to Yukk vessel and consequent concentrated automatic Yukk fire with high negative probability of survival of Mobile Command Center."

Elton scrambled back out of the capsule. "Dandy," he said. "Marvelous. Rush to the assistance of our Martian allies, eh? Now look at the pickle you've gotten us in!"

"Me, sir? Why, I've merely lent a hand —"

"All right! But here we are — wherever we are — sitting ducks

for the Yukk — whatever they are."

"Yukks; some kind of Bolsheviks, I don't doubt. But it's all the same to me. What we've got to do now, sir, we've got to make contact with our side and work out a plan of action."

"Never mind that," Elton said. "We've got troubles of our own. There's got to be some way to slip out from under the guns of that derelict."

"Not without first contacting these Martian chaps," Boyle protested. "We can take time to propose a toast or two, exchange cigarettes, that sort of thing..." Boyle's voice faded.

He stood, head cocked, listening.

"Do you hear anything, sir?" he whispered.

"Only you, making another fatuous suggestion," Elton replied tartly. "Personally, I favor asking questions of this mobile whatever-it-is until we get some useful answer, and then leaving as hastily as possible."

"There it is again sir!" Boyle said.

"What?"

There was a sudden quick padding of feet, a loud whoosh!, a sharp chemical odor; Elton took a breath to shout, choked, felt the world swim out from underneath and fall on him like a vast feather mattress.

V

Professor Elton moved to get away from an unpleasant jogging sensation, discovered tight folds of coarse netting binding his arms to his sides and holding his legs in a tight crouched position. His left ear was pressing into the rough strands, and there was a sharp pain in his neck.

"Help!" he croaked. "Boyle, where are you?"

"Here, sir," a weak voice came back.

"What happened? I'm wrapped up like a mummy in some sort of seine."

"Same here, sir. We were took unawares, it appears."

"By your Martian friends, I suppose?"

"Look on the bright side, sir. We haven't been done in yet. That's something."

They were in a dim-lit corridor, Elton saw. By twisting his head, he made out the silhouettes of slender biped figures with immense heads. He was, he saw, trussed in a net slung like a hammock from the shoulders of a pair of the creatures.

There were shrill shouts from ahead, answering cries from his captors. More of the bipeds crowded around; Elton strained to get a clear view through the mesh, but carried as he was in

a head-down position, he was unable to make out any more detail.

There was an abrupt lurching as he was carried up a short flight of stairs. He squinted his eyes against the sudden, brilliant light, then he oofed as the support dropped from under him, slamming him against a cool, hard floor. He pushed at the enveloping net, kicking it free of his feet, fighting it over his head.

"Good Heavens!" Boyle's voice burst out.

"Hang on, Boyle! I'm coming!" Elton shouted encouragingly. He flung the net from him, whirled —

"It said they weren't men," Boyle croaked.

Standing in a semi-circle facing the captives were six exceedingly pretty girls.

"Rubavilup mockerump hif-swimp," one of the girls said. Elton reached up dazedly to adjust his tie, his gaze glued to the large greenish eyes in the pert face before him. Below the face was a slender neck, adorned with multiple strands of turquoise-like beads. A close-fitting, short-skirted tunic hugged nicely curved hips; a pair of shapely legs led Elton's eyes to the polished floor, where they paused for a moment, blinked, and started back up.

"They're not bad looking, sir," Boyle said approvingly, "considering they're Martians."

The girl in the center of the group frowned. "Asibolimp hub-shut ook?" she asked Elton.

"I'm terribly sorry, Miss," he said. "I'm afraid I don't understand."

"Here," Boyle said loudly. "Who's in charge here?"

"Aridomop urramin ralafoo glip?"

"Who's . . . IN . . . CHARGE HERE . . .?" Boyle repeated, with gestures. The girls spoke briefly among themselves. One pointed to a door across the room, then took Boyle's arm, urged him on. He jerked free.

"Look here, my girl —" he started, shaking a finger under her nose. A sharp slap sent him back a step; his mouth opened and closed; then he reached for her. An instant later, having described a somersault over the girl's shoulder, Boyle gazed up from a supine position on the floor.

"Ralafoo glip," the girl said, and jerked her head toward the door.

"I think when she says ralafoo glip she means it; better do as she says," Elton suggested, starting toward the indicated door.

"All very well for you Yanks, you're used to this sort of thing."

In the inner room, Elton followed gestures toward a massive chair placed against the wall, seated himself gingerly. Something cool touched the sides of his face just in front of his ears, pressed firmly. There was a sharp prickling sensation. Abruptly, his head seemed full with a screech like a tape recorder running backward at high speed. Elton flopped in the chair, caught by the head. As suddenly as it had begun, the screech ended; the clamps retracted. Elton stumbled to his feet.

"What in the name of the Fallen Towers of Hubilik was that?" he demanded, rubbing his ears.

"The language indoctrinator," the nearest girl said.

"I don't understand," Elton stated, staring from the girl to the chair. "How in the name of the Five Sacred Snakes of Bomakook did my sitting in that thing teach you to speak Grm-blkpsk?"

"Umma oobabba ungha," Boyle yelled incomprehensibly, pointing at Elton. Two girls seized his arms, thrust him toward the chair. He braced his feet, still shouting nonsense. Elton saw the bright metal clamps swing down and grip the constable's head. They held him as he kicked out wildly, mouth open; then the chair released him. The girls stepped back.

"Now, if you'll behave yourself," the leading girl said to Boyle.

"Calm yourself, Boyle," Elton snapped. "I'm sure your behavior isn't helping us." He faced the auburn-haired girl who had first spoken.

"Now, young lady, if you'll just let me explain: My name is Rflxk . . ." he paused, frowning. "Rflxk? Is that my name?"

"If you're honest, you have nothing to worry about, dearies," the auburn-haired girl said, taking his arm in a firm grip and steering him back out into the hall. "Our detectors showed us something has passed through the screen. Naturally, we couldn't afford to take any chances. After all, you could have been Yukks — just like we learned in Training."

"Us Yukks," Elton managed a chuckle. "Why, my dear, we came here to assist you."

"Far lot of good it did us," Boyle muttered behind him. "These bloody Amazons don't want helping."

"Assist us how?" Elton's auburn-haired captor inquired.

"Why, in the fight with the Yukks; but of course —"

"Ix-nay, ir-say," Boyle said quickly. "One-day ell-tay em-they ut-way ee-way ound-fay."

"Well, back to the language indoctrinator," a red-head said.



"That won't be necessary," Elton said hastily. "My friend was just uh . . . reciting an old poem. By the way, where are we going?"

"A good luck spell? I hope it's a good one — not that they work."

"You're on your way to see the Mother."

"This is out of our jurisdiction," another added.

The girl holding Elton's arm looked up at him with a reassuring smile; her delicately curved lips were parted, showing even white teeth; her hair looked as soft as angora; her lashes were long and dark. With an effort he kept his eyes from the

warm, rounded shape poking
against his arm.

"We don't often get visitors from the other domes," she said. "It's kind of exciting, having you here."

"Why did you come?" another asked. "Is it about the fungus competition?"

"Now Nid, the Mother will handle the interrogation."

VI

The two men followed their escort along the high-vaulted corridor, up more steps and under a filigreed arch into a wide room, where dim light from lamps placed at random among

deep chairs glowed on small tables with bowls of exotic fruits, cushioned chaise lounges, and, at the center of the room, a fountain that leaped up to fall back into a shallow pool in which a vast, pale-white figure reclined.

Two of the girls went forward, spoke briefly to the fat woman in the water. Elton could hear an answer in a hearty, police-matron voice; the girls twittered again, pointing toward the two strangers.

"Let's have a look at 'em," the fat woman said.

Elton and Boyle moved up to the pool edge, averted their eyes in embarrassment as the matronly figure, totally nude, reached out for a fruit bowl at poolside, selected a mango-like ovoid, took a large bite, chewed noisily.

"All right," the Mother said. "You did right, girls; they're an odd-looking pair; look a little weather-beaten; not what you'd call beauties; but they're not Yukks, that's easy to see. You there—" Elton knew she was talking to him. He faced her, arranging a faculty-type smile.

"We haven't seen strangers here in a long time," the woman said. "Especially the kind that barge in without warning. Why didn't your Mother call me? Never mind; good experience for the girls. Hearing about something in Training is one thing,

actually seeing it's another. Now," she took another bite of fruit. "You two girls just tell me in your own words what you're doing here."

"What do you mean, you two oof!" Boyle subsided as Elton's elbow caught him in the side.

"Well, ah . . ." Elton started.

"I don't believe I've seen your type before," the Mother said. "Flat-chested, aren't you? And narrow through the hips. You must have a hard time with your babies." She shot Elton a sharp look.

"Oh, ah, terrible," Elton nodded. "Actually, I've never—"

"What dome is it you're from?"

"As a matter of fact, we came here from Shrulp," Elton said. He blinked, trying the name again. "Shrulp?"

"Here, sir," Boyle put in. "Why not just tell them we're from . . . Shrulp." He looked puzzled.

"I've hear of Mumbulip Dome," the Mother was saying. "And we had a delegation from Rilifub Dome in my Mother's time, after a rock tremor knocked out one of their air plants. They had a terrible time of it, crossing Outside in one of those old Travelers, afraid it would break down any minute; but Shrulp—that's a new one on me. Must be away over on

Far Side." The Mother frowned. "You're not here to stir up trouble, I hope?"

"Goodness, no," Elton felt the smile slipping, twisted it back into position. "We understood that you needed help in the fight against the Yukks."

"Praise Mother," the woman made a cryptic sign with her hands, which the girls standing in her line of vision copied. She frowned at Elton. "Where did you get the idea we don't know how to deal with a Yukk?"

"Frankly," Elton ignored Boyle's look, took the plunge; "The Lunar Battle Computer told us—" he broke off, seeing the expression on the Mother's face.

"Look here, young lady," the Mother snapped. "I'm as devout as the next person, but I won't stand for any superstitious nonsense. Now, I think you'd better explain your invasion of my Dome—and don't take me for a gullible old fool. I showed Mother Rilifub just how far she'd get trying to take the fungus arrangement championship away from us with her slick tricks."

"But it's nothing like that."

"Not that I don't respect the old ways, mind you. If it weren't for you trouble-makers, the World would be a peaceful place—and Girl has her place

in it. But I'm not standing by to see charlatans get my girls all aroused. First thing you know, they'll be openly advocating Strange Ways—"

A gasp ran through the assembled girls. The old woman ignored the reaction, signaled to a pair of handmaidens standing by. They stepped forward, gripped the fat arms of the Mother, and heaved her to her feet. She puffed, wading to shore.

"Tikki, Nid," she said to the attendant girls, "I'm tired. I'll talk to these girls later; they've put me all on edge, and I want to be calm if it comes to a Judgment. Take them along and mind you keep them under close surveillance." She accepted a vast huck towel, draped it across her shoulders, waddled to a chair.

"You'd better give them a blanket apiece and lock them in a storeroom," she added. "You know how crowded we are for space . . ." She shot a hard look past Elton at the girl Tikki. "Yes, I hardly know how we're going to find room for them, with crowding the way it is. But we'll manage somehow. Meanwhile, I intend to check with this Shrulp Dome wherever it is. If they're here to spread Strange propaganda . . ." She gave Elton a look which reminded him of a portly Dean of Women he had

once known, who had suspected him of intent to impregnate her charges.

"But we haven't told you —" Elton started.

"Silence!" the fat woman snapped. "I'll talk to you later. Maybe tomorrow."

"See here, we came here to do you a good turn, and without even listening, you're talking about locking us in storerooms."

"If they haven't taught you proper respect for Mother at Shrulp Dome, you'll learn it here!" The Mother said sharply. "Take them away, girls!"

Back out in the corridor, Elton cleared his throat and tried again.

"Pardon me, but aren't you girls concerned about the Yukk dreadnought out there, aiming its guns at you right now?"

"You girls must be overly preoccupied with theology over at Shrulp Dome," the girl the Mother had called Tikki said. "Sure, we know all about the Yukks, but after all . . ." she winked at Elton. "Nobody's ever really seen one. So why should we worry?"

"I don't understand," Elton said. "Here you are, right in the midst of a terrible battle with some sort of ghastly monsters with huge ships the size of mountains — and you don't seem to care."

"If we're good Girls, they can't hurt us," the girl dismissed the subject. "Listen, you seem like nice enough girls. The Mother said to lock you in a storeroom, but . . . maybe we could work something out." She turned to speak in a low tone to the girl beside her. They turned into a side corridor lined on both sides with identical doors; it had a deserted air. Through a half-open door, Elton caught a glimpse of an empty room, daintily furnished in bright, flashing colors.

"Look," Tikki said. "I'll tuck you in my room. Even though we're awfully crowded, as the Mother said," she added. "It won't hurt if we double up, if you don't mind sharing the bed. You must be simply worn out from the trip. I'll bet it's just awful outside the Dome," she shuddered.

"Sharing . . . your bed?" Elton asked.

"It will just be for tonight. Your friend will go with Nid. Tomorrow one of the other girls will have you, and the night after that another."

Elton took a deep breath. "Well, if you're sure it won't put you out?"

"It'll be fun," the girl said. "We can just cuddle up and have a nice long talk. I want to hear all about Shrulp."

It was a small, neat room, with fluffy curtains at the window, a shaggy rug on the floor, a flounced spread on the bed, and a rack in one corner on which hung a dozen bright-colored short tunics. Elton's hostess took off her turquoise beads and hung them on the rack, eyeing Elton's battered bush jacket.

"My, those are certainly strange-looking clothes you have on. I suppose you needed them for the trip, but you can get out of them now. I'll draw us a tub. Would you like a little ginger in it, or maybe a touch of mint? I always like mint, myself."

"Tub?" Through an open door Elton saw a pink-tiled room, and tropical-looking flowers in planters lining a ten-foot square sunken pool with bright chrome fittings.

"We can just relax and scrub each other's backs," Tikki said. She finished undoing the snaps down the back of her tunic, shucked it off, dropped it in a wall-slot, faced Elton wearing a diaphanous one-piece undergarment.

Elton's collar suddenly felt tight. He felt his face break into a silly smile, "Well, whatever you say . . ."

Tikki plucked a small box from a table, offered Elton what

looked like a plastic cigarette. He groped, took one, jabbed it at his mouth. Tikki took one, drew on it, blew out perfumed smoke. "I'm afraid you bugged the Mother, with all that talk about the Yukks. She's a dear, really, but very hard-headed when it comes to religion. She says it's time we did away with outmoded concepts and recognized that the Yukks are merely an externalized personification of an inner yearning for defilement, or something."

"Look," Elton said abruptly. "Let's play a little game. We'll pretend I just arrived from . . . from someplace so far away that I never even heard of the Yukks, or the Mother, or the domes — and you tell me all about it," Elton said.

"That sounds like a very strange game," Tikki said doubtfully. She opened the door to an adjoining room, stepped inside; a moment later a sound of rushing water started up. Steam wafted into the room, carrying a scent of Lifesavers. Tikki came back, holding a large cake of violet soap.

"Is that what you play back at Shrulp?"

"Yes, we spend a lot of time telling each other things we already know. The trick is to catch the other . . . ah . . . girl in a mistake."

“Well, it doesn't really sound like much fun. If you feel like playing, wouldn't you rather just wrestle? I'll bet you know some interesting holds.”

“Maybe later,” Elton gulped. “Now, you were going to tell me all about the Yukks, remember?”

Tikki put a finger to her cheek, nibbled at her lower lip, looking thoughtfully at the ceiling. Elton found the expression perfectly delightful.

So was the slim, tanned body below it.

“Well, nine hundred and sixty-four—or is it sixty-five . . . ? Let me see.” Tikki nibbled a finger tip. “It must be sixty-five because I finished Baby Training when I was ten, and Girl Training when I was eighteen, and it was sixty-one then, and that was four—”

“Sixty-five it is,” Elton put in. “You're doing fine.”

“Anyway, nine hundred and sixty-five cycles ago, when the war with the Yukks was in its nineteenth cycle, there was a great battle fought between two fleets. Now, in those days there were many among the Girls who were badly tainted with Strange Ways.”

Her voice, Elton noticed, had taken on the tone of a pupil reciting lessons. “Because of this, the Girls weren't able to destroy

the wicked Yukks, as they deserved. Instead, the Great Mother sent a terrible thing called a Disruptor that caused the machines of the Girls to malfunction, and all of the Girls were killed or captured—except one shipload. The captain was a righteous Mother, and so she and her Girls were spared. They landed here on the World, and set up the Force Domes, and the defensive screens, to keep the Yukks at bay. That's why it's our duty to tend the Field Generators, and defend Girlhood, and weed out any traces of . . .” she blushed, “. . . Strange Ways. Not that anybody has any,” she added.

“Any what?” Elton asked.

“Strange Ways,” Tikki said primly. “You know.”

“But we're playing that I don't know, remember?”

“Here,” Tikki said reaching for Elton's top jacket button. “I'll help you get these things off. The tub's ready by now.” The steam had formed a pinkish haze at eye level. “Is this what holds it?” She undid the button clumsily. “I'm not very good at this . . .” She undid another button.

“What about the Yukks?” Elton's voice sounded strained. Tikki undid the last coat button and pulled the garment off him.

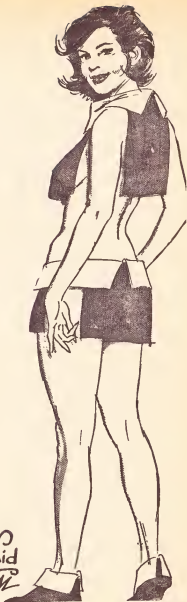
“Well, the Yukks are evil beings who tried to enslave all Girlhood, once, long ago, before we were driven out of the Heavenly Garden. They were great big ugly creatures, with hair growing all over their faces, and huge, bony hands—six of them, I think—and whenever they could catch a poor, defenseless Girl, they’d . . .” Tikki swallowed, her face pink. “They’d do Strange Things to her.”

“Strange Things?” Elton’s voice was a squeak. Tikki was just finishing the last shirt button. She peeled it back over his shoulders.

“And the terrible power they had was, that they made perfectly nice Girls *want* them to do the Strange Things. Even now, there’s always the danger that a Girl will fall into Strange Ways—like dreaming about a Yukk chasing her, with all six hands reaching for her—and even catching her . . .” Tikki took a deep breath. “That’s what makes the Yukks so terrible, and that’s why if there really ARE any Yukks, and one of them ever managed to get into the Dome—” Her eyes were flashing with anger; her nostrils flared. “Everyone would tear the horrible hairy thing into tiny little pieces before he could spread any Strange Ways!”

“Tiny little pieces?” Elton

did
GM



stammered. He grabbed for his shirt, pulled it back on. Tikki's eyes strayed to his chest. "My you ARE flat-chested," she said, in an envious tone. She put a hand under each of her magnificently formed mammaries, looked sadly down at them. "These DO get in the way . . ."

Elton was backing toward the door. "Ah . . . I've just remembered something," he blurted, fumbling the door open. "Where did they take my friend? I have to find hi — her — right away!"

"Oh, she's just next door," Tikki said. "But —"

Elton whirled to the adjoining door, banged on it, twisted the knob. It flew open. Boyle, shirtless, was just reaching for the tanned curve of his hostess's hip.

"No!" Elton shouted.

Boyle yipped and jumped a foot into the air.

"I've got to talk to you!" Elton hissed, "privately!"

"Look here, can't it wait?" Boyle's face had assumed a beefy color. "Bloody cheek, I call it, bursting in here just when I was about to . . . to . . . make friends."

"That's what I have to talk to you about." Elton glanced at Boyle's roommate, then at Tikki, standing in the doorway, looking puzzled. "Do you mind, girls? Just for a moment?" He ushered the girls out, closed the door.

"I've made a discovery," he started.

"Me too," Boyle said, smirking. "I think we're on to a good thing. A different one every night, at that. Now if you'd just toddle off, there's a good lad —"

"Do you know what they do to Yukks if they catch one?" Elton cut in.

"Tear 'em to bits, Nid said — that's my young lady. They've no more use for bloody Reds than —"

"Correct," Elton said. "They tear them to pieces. Small, hairy pieces."

"So what's that to do with us?"

"Plenty," Elton said. "We're Yukks."

VIII

Boyle was sitting on the bed, mopping at his face with a tiny lacy hanky he had found under the pillow.

"That was a near thing," he said. "Another five minutes —"

"And you'd have stood revealed as the ancient arch-enemy of Girlhood," Elton said decisively.

"But look here, from what Nid said, they've been living here on this Tup'ny world for nine-hundred cycles, whatever those are."

"Nine hundred and sixty-five," Elton corrected him. "I think the term probably refers to Jupiters revolutions around the sun. That

would be about . . . hmm . . . eight thousand two hundred years, Shrulp time."

"Eight blinking thousand years? But that Looney Control affair said the crew had just stepped out."

"They did, too — about the time the ice was melting off Wisconsin. Probably ran into a party of early head-hunters or a wandering hyaenodon. I'm afraid Lunar Control has little or no awareness of the meaning of time."

Boyle shook his head. "Eight thousand years with no Yukks? Then how in the Six Rivers of Blue Mud do they have blinking babies?"

"I'd imagine they have a supply of frozen sperm — or possibly they've developed a method of parthenogenesis."

"How do you suppose this bloody system ever got started?" Boyle looked bewildered. "What this lot needs is a firm masculine hand to put things in order. I've a mind to —"

"To be torn to bits? Please, Boyle, this situation requires careful handling. We've got to get away from here — that much is clear. And there's no time to lose. Sooner or later someone is going to put two and two together."

"And it may as well be me," Boyle said with sudden decision.

"Leave that Nid to me for a night or two and I fancy —"

"Strange Ways," Elton said. "That's what they call that sort of thing. I suppose it all started with some sort of idiotic feminist movement, somewhere. The women developed a method of reproducing without men, and declared their independence. Naturally, war followed; a war fought in space."

"Why space? And how? There weren't any bleeding space vessels eight thousand years ago."

"Apparently there were. As a matter of fact, I did a paper once — but never mind that. Being women, the Girls wouldn't want to do anything as untidy as fighting a war right there on Earth — and then too, I suppose the important logistical targets were off-planet; control of the spaceways was the key to success. And so a great battle was fought, and both sides virtually wiped each other out. The surviving Girls reached Calisto here, and set up these force domes and a defensive screen to keep off what was left of the Yukks; and the Yukks, with only one damaged ship left mounted a siege; then they died off — but the Girls never knew."

"I see . . . and back home, everybody made up and forgot the whole thing."

"Not quite; there's still a certain residual hostility. But the economic drain of the war and the loss of personnel plunged society back to a minimal cultural level — and we're only now reattaching their level of technology."

"All right, granted you're on the right track; what do we do now? Slip out of here and leg it back to the Mobile Whatsit?"

"We don't even know where it is — and anyway, the Yukks have us pinned down, remember? The minute we come out from under the defensive screen, blooie!"

Boyle chewed the inside of his cheek; a shrewd expression settled over his features. "They won't shoot — not if we let them know we're Yukks ourselves."

"Maybe," Elton said, looking thoughtful. "We *could* give it a try, I suppose."

"No time like the present." Boyle went to the door, opened it. Nid and Tikki came in, two slim creatures as unself-conscious as a pair of young antelope.

"What are you two girls talking about in here?" Tikki asked.

"I'll bet you have some important message from your Mother?" Nid hazarded.

"As a matter of fact, we do," Elton said. "Of course, this is a very confidential matter. You musn't tell anybody."

"Not even Mother?"

"We tell Mother everything," Nid said.

"Even about your — Strange Thoughts?" Elton hazarded.

Nid and Tikki blushed a delicate shade of purple.

"We'll have to confide in you ladies," Boyle said solemnly. "We've got wind of a big push the Reds are planning. High Command is counting on us. We have to go back to our traveler."

"You mean — there really *are* Yukks?" Nid's eyes were large with wonder.

"Absolutely," Elton nodded.

"I . . . I feel all sort of wiggly inside." Tikki put her hands to her stomach.

"Can't you wait till in the morning?" Nid asked anxiously. "It's only a month away."

"No, we have to go right now."

"Even before our bath?"

"Definitely."

"You're such brave girls," Nid said admiringly.

"I . . . I can't go," Tikki said. "I'm afraid I might —" Her lip quivered. "I might turn out to be — unreliable." She burst into tears.

"There, there," Elton patted her shoulder, dismayed. "What's there to be afraid of? You'll be with us."

"You don't know what an awful Girl I am," Tikki sniffled. "I have Strange Thoughts all the

time . . . and I'm afraid . . . might . . . I might . . . disgrace Mother." Her sobs took over. Nid took her hand. "Now, Tikki, you're not the only one. I don't know a Girl who doesn't have a Strange Thought now and then."

"B-but I have them all the time . . ."

"I'll tell you a secret: So do I; but—"

"But I *like* them!"

"Look, we'll keep an eye on you," Boyle said. "You'll have to shut down that salt-water factory now, we've got to get cracking."

Tikki dabbed at her eyes and looked at Boyle resentfully.

"Why, you're the meanest Girl I ever met," she said.

Elton stepped up and put a protective arm around her.

"Just leave Tikki alone, Boyle. Can't you see she's upset?"

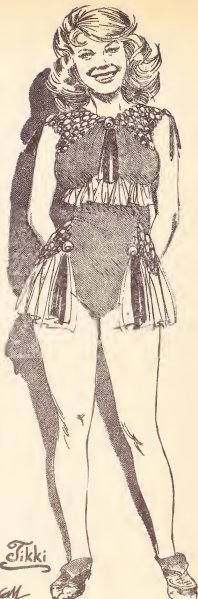
"Too right," Boyle muttered. "Let's be off, Nid me lass. No time to waste, you know. Mother's orders and all that."

Nid opened the door and peeked out. "Coast is clear," she said. "What about you, Tikki? Coming?"

Tikki looked up at Elton. "I'll go," she said, still sniffing. "If you'll promise to . . . to watch me."

"I won't take my eyes off you."

"Good. I'll feel safe then."



She squeezed Elton's hand. They stepped out and started off along the hall.

Twenty minutes later, the foursome rounded a fountain tinkling in the dark, stumbled past a six-foot hedge, saw the blue glow of the Mobile Command Center ahead.

Elton halted. "There aren't any guards on it, I hope?" he whispered.

"Of course not? Why should there be?" Tikki said aloud.

"Shhh!" Elton cautioned. "This is a top secret mission, remember."

They came up to the capsule sitting quietly, doors open, waiting.

"Looks like everything's shipshape," Boyle said. "Just like we left her."

Elton leaned close to him. "Stand by with the girls a few yards back. I'll try to arrange a truce."

"Right," Boyle moved to comply. Elton stepped into the cramped chamber, settled into the seat.

"Ah . . . look here, Lunar Computer. I'd like to contact the Yukk ship, get a message to their computer; whatever it is that controls the vessel. Is that possible?"

"Messages can be transmitted on the Yukk wavelength."

"All right; I want to tell them I'm taking off, and not to shoot. I want them to know we're on their side. Tell them we're Yukks, just like they are, and —"

"MAYDAY, MAYDAY," the metallic voice screeched. "Yukks occupying Mobile Combat Command Center Ten Ninety-four! Executing emergency procedure forty-one!" Elton's seat lifted, dumping him out onto the grass. With a hiss and a sharp *smack!* the doors closed, snipping off the blue glow. There was an abrupt *zing!*, followed by a small thundercap. A gust of wind ruffled Elton's hair. The capsule was gone.

"Herel!" Boyle yelled. "What do you think you're doing?"

Nid and Tikki stood staring.

"It . . . it went off and left us," Elton said weakly.

"Did I hear it say . . . Yukks?" Nid demanded.

"W-where are they?" Tikki asked, looking around.

"Now we've had it," Boyle groaned. "Stranded, among these Yukk-eating females!"

"What did you say?" Nid demanded.

"Never mind, my dear. You've been as nice a little friend as a girl could have. Now just run along and let me think."

"Hold on, Boyle," Elton said, getting to his feet. "Don't panic." He turned to Tikki. "You girls

don't happen to have another Traveler like ours—do you?" he asked hopefully.

The girl shook her head. "I never saw one like that before."

"Do you have any kind of . . . of space vessel?" Elton said desperately. "Anything you can use to travel up there?" He jabbed a finger at the night sky.

"We have one . . ." Nid said doubtfully. "But —"

"That's all we need," Boyle said promptly. "Just lead the way, there's a good girl."

"Well . . . it's a funny time to be going to church."

Distantly, Elton heard the shrill of a siren. Far away, someone shouted.

"Oh, dear," Tikki said. "Someone's discovered you girls have gone out without permission, I'll bet. Mother's going to be upset."

"Let's just hurry along to the ship—quietly," Elton urged. "After all, we can't let anything interfere with the mission, can we?"

"I think we'd better tell Mother," Nid said doubtfully.

"No time," Boyle said. "Every minute counts. Mother will understand, won't she, professor?"

"That's what I'm afraid of. Let's get going!"

"This way," Nid said, and slipped away into the shadows, the others at her heels.

A vast, clumsy pyramidal shape loomed up, the base stretching away into darkness. Elton came up to it breathing hard, listening to the clang of bells, the shouts of Yukks and the shrill ululation of the siren.

"They're pretty well stirred up," Boyle said. "How do you reckon we get inside this beast?"

"Where's the door, girls?" Elton inquired, peering through the gloom.

"Over here," Nid called. At Elton's side, Tikki shivered. "It's scary," she said. "I have the feeling the Yukks are right here beside us."

Ahead, Boyle muttered a curse. "Watch that bottom step, professor; rotted through." Elton gave Tikki a hand up, followed her up a short flight of crumbling wooden steps; as he stepped through the wide entry, his shoes clanged on metal.

"Where's the bridge, or the cockpit, or whatever you call it?" Boyle asked in a hoarse whisper.

"You mean the Mother's Seat?" Nid asked. "This way . . ."

Elton and Boyle grunted and puffed, clambering up narrow companionways in the dark, banging their heads on low passages, snorting dust from their nostrils.

"Bit of rum odor about the place," Boyle commented.

"It reminds me of the smell

of the Royal Chamber in Cheops' pyramid," Elton said.

"Here we are," Tikki said. "What are you going to do now?"

There was a shout from below, an answering call, then a mutter of conversation.

"How do we close the entry port — the doorway?" Elton hissed.

"That's this big handle over here," Nid said. "Are you going to hold a Service now?"

Elton grabbed the dimly seen lever, hauled it down. There was a growl of metal. Below, a heavy *clang!* cut off the voices.

"Wish there was a bit of light here," Boyle said.

A wavering, yellowish illumination sprang up. Tikki smiled from the panel, where scattered indicator lights glowed wanly. Elton went over, stared at the layout.

"Tikki, do you understand all this?"

"Oh, certainly; we had all this in Training."

"How do you start the engines?"

"Oh, goody; we're going to have a Service." Tikki turned to the panel, reeling off details of the countdown checklist. Boyle came over, holding a thick book in his hand.

"Have a look at this, sir; the log, I imagine."

"Later," Elton said. "You'd better give me a hand here, Boyle. This is pretty complicated."

Boyle listened in silence for a moment.

"Hold up there, Tikki," he said. "Look here, professor, this is hopeless. It would take a ruddy genius to gen up on this drill in the time we've got. You see what we have to do, don't you?"

Elton looked at him. Tikki had stopped her recital and was listening, eyes wide.

"You mean?" Elton said.

"Right! They've got to go along. Couldn't let them back outside anyway, without letting that lot down below in."

"But — that would be kidnapping."

"Tikki!" Nid's voice came suddenly, a shrill yelp. "Look!"

Tikki jumped up. Nid rushed to her, thrust a faded and curled sheet of flexible plastic into her hand. Elton craned to see it.

KNOW YOUR ENEMY! the heading read. Under the legend was a clear, glossy full-length photograph of a nude Yukk.

Tikki looked from Elton to Boyle, back to the picture. "It . . . it looks . . . like the new girls," she said in a quavering voice.

"Just look at that flat chest," Nid gasped. "And those skinny hips; and-and . . ."

There was a heavy thumping from below. Boyle whirled to Nid. "Look here, love, there's no time to give you the full story now; just get this machine going, there's a good girl!"

"We . . . we really ought to go for help," Nid quavered.

"Start the ship up, Tikki," Elton pleaded. "Even if we are Yukks, we're not such monsters, are we now?"

"But I don't . . . I mean, why —?"

"With that crew snapping at our heels, I should think it would be bloody obvious!" Boyle snapped. "You said you know how to operate this thing! Hop to it, or we've bought the ruddy farm!"

"I'm a wicked, wicked Girl," Tikki said weakly. "I'll do it . . ."

She went to the control panel, seated herself in the padded chair, punched buttons, closed switches; lights winked and glowed sluggishly; instrument needles stirred from pegs; there was a dry *click!* somewhere. Tikki got to her feet.

"There," she said. "But I just don't see how you can think of ritual at a time like this —"

"What ritual? We just want to depart as quickly as possible," Elton reached for Tikki's hand. "I hate to kidnap you like this, my dear, but —"

Tikki shivered and leaned

against Elton. "I keep having the Strangest Thoughts . . ."

There was a final thump from below, a screech of reluctant hinges, then a babble of voices. Feet thumped on stair rungs.

"They're inside!" Elton urged Tikki toward the panel. "Quick!"

A girl appeared at the control room door; Boyle jumped at her, came staggering back as she stiff-armed him. More girls crowded into the room; a heavy-set fortyish woman pushed through, stood with hands on hips eyeing Elton and Boyle.

"So you're Yukks," she said in a loud, deep voice. "You don't look so tough to me!"

Elton lunged for the panel, punched buttons at random. Two of the girls pulled him away.

"A religious nut," the deep-voiced woman barked. "Well, it's too late for that, you! And anyway, you Yukks have no business desecrating the Church!"

"Church? She said it was a ship," Elton stammered. "The only one there was . . ."

Boyle groaned. "It just came to me," he said. "No wonder nothing happened when Tikki twoddled the controls. This must be the ruddy vessel this lot came here in, eight thousand years ago."

"So the story goes," the captain said. "Now let's get moving, you two." She shot Tikki

and Nid a hard look. "And there'll be an investigation into the role you Girls played in this escapade, too."

"We . . . we kidnapped them," Elton said.

"A likely story." The woman jerked a thumb toward the frightened girls. "Put all four of them under guard and march 'em back to the dorm. It looks like the Mother's going to be sitting in Judgment tonight."

IX

The Mother was reclining in a heavily padded chaise lounge, with a box of pink and yellow candies at one elbow and a plate of cookies at the other. Heavy robes with elaborate flounces obscured her ample contours. She looked at Elton severely.

"Lying to the Mother," she said. "You ought to be ashamed, even if you are Yukks—and I never thought the Enemy would turn out to be so insignificant looking."

"They're worse than they look," the captain of the guard said. "You see the state they've got this pair of ninnies in," she indicated Tikki and Nid, standing by with drooping expressions.

The Mother's face tightened. "I thought from the first there was something Strange about

them." The assembled Girls—several hundred of them, Elton estimated, all ages, crowded into the wide Mother's Room—sighed in unison.

"Silence in the courtroom!" the Mother snapped. "This is an open-and-shut case. These two are Yukks—that's plain enough. They led a pair of formerly decent Girls astray." she eyed Tikki and Nid. "I'm going to let you two off lightly; cold baths every three hours for the next two days; that ought to cool those Strange Ideas off." She turned back to Elton and Boyle.

"As for you, there's only one way to deal with a Yukk: it's out in the Cold for you—"

The crowd of Girls gasped; a murmur ran through them. Tikki sprang forward.

"That's perfectly horrid!" she cried. "If they're going out in the Cold, I'm going too!" Strong-arm girls jumped for her, dragged her back in line. Nid was sobbing quietly. Boyle shot her a sickly smile. "There, there, lass, don't fret."

Elton cleared his throat. "Just a minute, Mother," he said loudly. "Before you take this drastic step, I think there are a few things you should know."

"What's that? What could a Yukk have to say that would interest a Mother?"

Elton folded his arms, a calm, self-confident expression on his face.

"If you'll clear these others from the room," he said easily, "I'd like to tell you the Facts of Life."

Elton was lounging at ease in a deep-cushioned chair that was a twin to the one the Mother had occupied at the Judgment, eating large hot-house grapes that were being popped into his mouth one at a time by Tikki, while other Girls crowded close.

Wide double doors opened across the room. Boyle appeared, shaved, his hair curled, a neat short tunic flapping at his thighs. A bevy of shapely Girls surged around him, all chattering at once. Two ran forward, scattered vari-colored cushions in a heap by the side of the wide pool set in the floor.

"I've got to give you credit, professor," he said. "You look like a blooming oriental potentate. How in the name of the Nine Gates of Ishalik did you do it?"

Elton wrinkled his nose. "I think they overdid it a bit with the perfume, Boyle," he said easily. "Otherwise you look well."

"The old bitch was ready to shove us outside the dome without even a set of ear-muffs,"

Boyle stated. "We'd have frozen solid before we had a chance to asphyxiate. What did you say to her to rate us all this?"

"Girls, leave us!" Elton said, waving a hand. "You can come back in a few minutes, dears."

They fled, casting longing glances back.

"Well?" Boyle demanded.

"Elementary, my dear Boyle. Surely you noticed the large number of rooms in the dormitory wings? Several hundred in our wing alone, and I saw at least a dozen wings —"

"Don't talk ruddy architecture. Get to the point!"

"This is the point. There are only seven hundred and four Girls here — and yet the building was obviously designed for many more. And then there was the business of the Mother chattering about the crowded conditions; consigning us to a broom closet."

"That was just a bit of bloody cheek," Boyle said.

"No, it was important to her to give us the impression that the dome was overflowing with Girls; these domes don't get along too well with each other, remember. She didn't want strangers to find out her fighting strength had fallen so low."

"Well, if it's low, it's her own ruddy fault. I reckon she's the

one that controls the birth-rate."

"Hmmm, yes — as far as she can. But did you notice, Boyle, that there are no children around? Tikki and Nid are about twenty-one; there's quite a number about the same age. The next grouping is at about the forty-five age level; the older generation, I suppose. Then there are a few old ladies who —"

"But there's no new generation, Boyle, and none of the girls are pregnant."

"So?"

"They've been using an artificial insemination method — using frozen sperm cells, all of the x-x variety — thus only girls were born. But unfortunately, the supplies ran out twenty-odd years ago."

"Blimey! Then —"

"Exactly. After eight thousand years, it was all over — until we came along."

"So now it's up to us?"

"Correct, Mr. Boyle. I suggest we work out some sort of equitable division. It should take us a year or so to work our way through, and then start over."

"Of course," Boyle said doubtfully, "It means we're stranded."

"Not forever. I learned from the Mother that there are very extensive libraries here, well-equipped laboratories —"

"Hold it!" Boyle leaned on one elbow, looking worried. "These

little ones we'll be fathering: half of them will be little Yukks!"

"Of course. Things will come back to normal in about twenty years — and by that time I think we'll be ready to retire. We'll set up schools, start training a new generation of technicians. They'll be able to get the old ship going again — or build a new one. We can neutralize the Yukk ship, return to Earth in style with enough technology to make us too rich to talk to." Elton picked up a dusty book from the floor.

"But, this is my greatest prize," he said. "The log book from the ship. It gives an excellent picture of the pre-history of human affairs on Earth from about 15,000 B.C. up until the war seven thousand years later."

"Twenty years, eh?" Boyle mused. "But look here, professor; I just happened to think! All the old bag had to do was take a specimen from one of us — there's millions of germ cells."

"But she didn't know that, Boyle — so we'll just let it be our little secret."

"I think you've hit on it, professor," Boyle called. "Never tell 'em all you know."

"Correct," Elton said. "And in the meantime, we'll deal with our problems . . . one at a time."

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Seated, l. to r.: Bennett Cerf, Faith Baldwin, Bergen Evans, Bruce Catton, Mignon G. Eberhart, John Caples, J. D. Ratcliff. Standing: Mark Wiseman, Max Shulman, Rudolf Flesch, Red Smith, Rod Serling.

Photo by Philippe Halsman

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